



ASSOCIATION OF SCIENCE, TECHNOLOGY & INNOVATION

# ANNUAL REPORT 2019



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# ANNUAL REPORT 2019

● **ASTI Annual Report 2019**

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● **Association of Science, Technology and Innovation (ASTI)**

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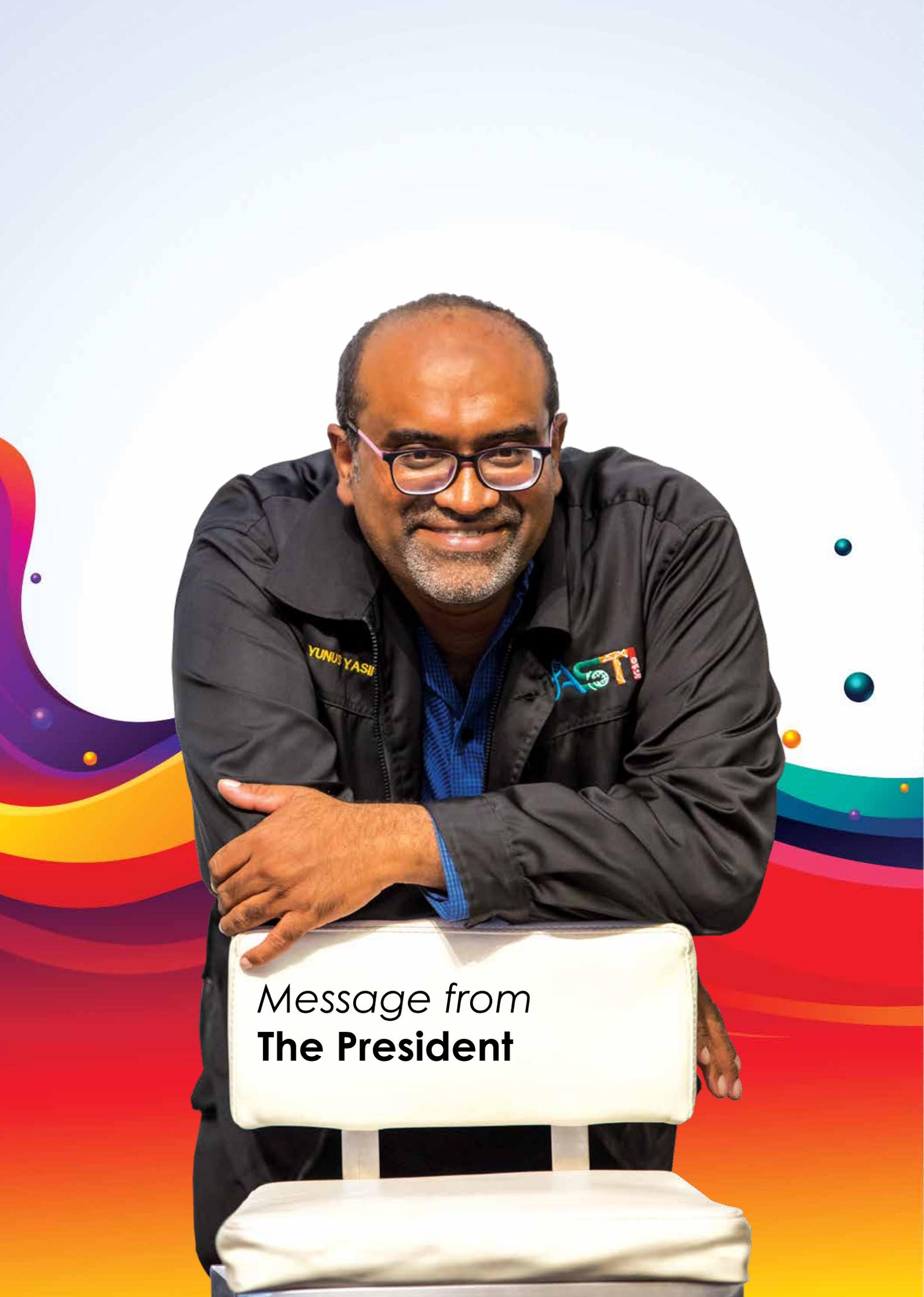
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*Message from*  
**The President**

ASTI is a non-profit organization that aims to inspire young people in the fields of Science, Technology, Engineering and Mathematics. I often see the acronym STEM as an image of a tower with the "S" and the "M" being the base or the 'feet' that holds up the body of both the "T" and "E".

What is science? In the words of Albert Einstein "The most incomprehensible thing about the world is that it is at all comprehensible." Science is the pursuit of understanding the Universe, from the smallest of things to the largest of things, from the most simplest of objects to the most complex, from the most obvious to the most hidden, from all that we can see to all that we can't. Science does not make a claim least it can show evidence for it. There is no science without evidence. Science has systematized the collection of evidence with various methods of observation and experimentation.

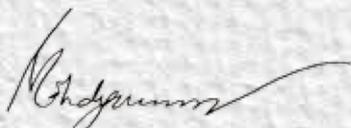
Mathematics on the other hand is the art of interpretation of the observation made by science. In the words of the Mathematician Pythagoras, "Evolution is the Law of Life, Number is the Law of the Universe, and Unity is the Law of God". So mathematics is used to understand patterns in the Universe, from big patterns to small patterns, from the simplest of patterns to the most complex. A true mathematician composes his equation like how a musician places note to form a symphony. Like music – mathematics is the study of harmony and rhythm. Again in the words of Pythagoras "There is geometry in the humming of the strings, there is music in the spacing of the spheres". So some say that Mathematics is not only part of science but is also a form of Art.

So in summary, Mathematics cannot exist without Science and vice versa. Science and Mathematics allow us to look at anything in the Universe and interpret them in a systematic and consistent way. They are the core foundation to all the "T"echnological advances and "E"ngineering monuments we see around us, hence the term STEM.

At ASTI, this has been a productive year for all our projects including Science Fair for Young Children, Young Inventors Challenge, Creative and Critical Thinking Camp, ASTI Leap Challenge and many others. Young Inventors Challenge has also been honored to be shortlisted among 1507 projects from across the world by QS International in London. I also had the honour of giving a short speech to the finalist for the UK Young Entrepreneurs Scheme Competition 2019 held at the Royal Society in London. We hope to not rest on our laurels, and hope to continue our efforts to keep ASTI relevant to our key stakeholders and to the community at large.

Finally, I leave you with the simple Pythagorean exercise to put into practice doing good and avoiding bad. He said "Do not go to bed until you have gone over the day three times in your mind. What wrong did I do? What good did I accomplish? What did I forget to do?"

We hope for your continued support and advice. Thank you once again for your patience and encouragement.



**Dr. Mohamed Yunus Bin Mohamed Yasin**  
**President**

*Association of Science, Technology and Innovation*

# EXECUTIVE SUMMARY

ASTI, Association of Science, Technology and Innovation, champions the role of science in the community and inspires the young generation of our nation to join and excel in the world of science. ASTI has conducted events and taken up projects in 2019 to play its role in encouraging the use of science in almost everything in our everyday life.

In 2019, a total of 236 schools completed their School Level Science Fairs as of September 2019. Meanwhile, 271 schools participated in Zone Level Science Fair which was completed in 9 zones by the month of May 2019. National Science Fair for Young Children was held on 27th & 28th July 2019 at SJK(T) Effingham, Petaling Jaya. Seventy schools were selected from the 9 zones to take part in the national event. For this year's National Level Science Fair, the selected 70 schools were required to submit a 200 words abstract based on their experiment. This year's National Level Science Fair was comprised of booth exhibition and also hands-on experiment.

The Young Inventors Challenge (YIC) 2019 is a competition held for secondary school students and it was open to all students. ASTI did online training for the teachers and students this year also as in previous years. For 2019, ASTI received a total of 286 proposals from 446 registrations and 151 teams were shortlisted. From the shortlisted teams, 132 teams took part in the Grand Finale which includes teams from Malaysia, the Philippines, Singapore, Thailand, Indonesia, China, Brunei, Vietnam and Timor Leste. The Grand Finale took place on 21st September 2019 at the Malaysian Global Innovation & Creativity Centre (MAGIC) with the teams showcasing and presenting various innovation ideas. The theme for the seventh YIC was Sustainable Development Goals (SDGs).

ASTI organised a 3 day 2 night Creative and Critical Thinking (CCT) Camp 2019 at Green View Farm, Negeri Sembilan from 6th December 2019 until 8th December 2019. Besides that ASTI conducted 2 other CCT workshops at SJK(T) Effingham and SJK(T) Jenjarom. Based on the offer from Philippine Science High School-CARC this year, ASTI decided to collaborate with a partner to conduct Science Immersion Program (SIP) for 13 participants from the Philippines.

The Science Film Festival is a celebration of science communication and enjoys a unique position in Southeast Asia, North Africa and the Middle East. In 2019, the event took place internationally in over 28 countries and received 200 films. The Science Film Festival 2019 came up with the theme of "Humboldt and the Web Of Life". The festival partners in Malaysia were the Ministry of Education Malaysia, the Cooler Lumpur Festival, Malaysian Nature Society, German-Malaysian Institut-GMI, Association of Science, Technology and Innovation-ASTI and Ecocentric Transitions. The opening ceremony was held on 3rd October 2019 at the White Box & Black Box, Publika, Kuala Lumpur, from 9.00 a.m. to 2.00 p.m.

ASTI Leap Challenge (ALC) pilot project continued again this year. Schools that conducted ASTI Leap Challenge in their schools in 2018 continued conducting ALC again this year. A total of 4 schools continued with ALC this year. ASTI also provided 1 Day Training for new schools in Simpang Renggam Zone. Seven schools from Simpang Renggam Zone participated in the 1 Day Training provided by ASTI. The theme for ALC school level this year was "Sustainable Development Goals 12: Responsible Consumption and Production".

ASTI organised Youthbiz Starz under ASTI Entrepreneurs programme. ASTI conducted the pilot programme with Kolej Tingkatan Enam Zainul Abidin (KTEZA). A 1 day intensive training followed by a business plan competition was held for this programme. Schools in Penang that offer Form 6 or STPM were invited to participate in the programme. The training was held at DISTED College on 10th July 2019 while the competition was held on 24th August 2019 at KTEZA. A total of 80 participants from 16 schools took part in the final event.

Science Fair for Young Children Champions League (SFYC-CL) pilot programme was organised by ASTI to appreciate the winners of various international competitions in 2018 and followed by lunch and prize giving ceremony. The programme was aimed to train young people to develop a different perspective on their invention. A total of 39 teams participated in the competition by presenting their invention business plan. The competition was held on 30th March 2019 at Midlands Convention Centre, Selangor.

Under Young Scientific Explorer (YSE), ASTI helped organise in a mini "Science Fair" conducted on 23rd March 2019 at Setia Eco Templer Sales Gallery (by invitation) by setting up a science experiment booth for children. ASTI showcased 10 experiments based on scientific concepts to the children.

Under "On the Wings of Fire Series", ASTI conducted 2 sessions of Creative and Critical Thinking training for Institut Pendidikan Guru(IPG) lecturers. The first session was for lecturers from Peninsular Malaysia while the second session was for Sabah/Sarawak. Dr. Mohamed Yunus Yasin conducted 2 days of training for creative thinking and 2 days of training for critical thinking for each session in Peninsular Malaysia and Sabah/Sarawak.

ASTI held ASTI Progressively Learning and Understanding Science (A-PLUS) programme for SFYC Alumni Form 1 students. In this programme, students were trained to conduct experiment and activities to help them understand the key scientific concepts and principles in their syllabus. Three workshops were held this year for A-PLUS.

Young Inventors Journal (YIJ) 2019 held a paper writing competition organised with ASTI for the first time. The theme for the pilot project was "How to Conserve and Save Water". The paper writing competition was opened to students aged 13 to 18 years old. ASTI received a total of 44 papers from 83 registered abstract. The top 3 participants, both Individual and Group category were invited to deliver their presentation on Young Inventors Journal Paper Presentation Day 2019 held on 17th August 2019 at White Box Publika, Kuala Lumpur.

Besides organising ASTI projects, ASTI has also taken up other collaborative projects for the year such as Science Film Festival, Klang Valley City Nature Challenge, Education Tour, DISTED 2nd Annual Mathematical and Science Olympiad and launching of STEM Education Digital Learning Portal. ASTI was also appointed to the Industry Advisory Board for Politeknik Ungku Omar.



# 1 INTRODUCTION

The Association of Science, Technology and Innovation (ASTI) is an association of educators, scientists, industry representatives and individuals who are committed in advancing the role of the scientific community in inspiring youths of the nation to join and excel in the field of science.

ASTI was set up on 25th October 2012 by the founders of Science Fair for Young Children (SFYC).

The members aim to help revolutionise the teaching, understanding, and awareness of the vital role science, technology and innovation, STI, plays in fulfilling the economic, health and environmental requirements of the world's population. Its members also seek to mentor and encourage youths to seek new innovative methods and technologies that will enhance the learning and understanding of science.

In addition, ASTI tries to use science, technology and innovation, STI, for the advancement of mankind and protection of the environment that nourishes all. ASTI believes that science, technology and innovation, STI, is part of the wider realm of knowledge such as arts, history, language and others.

## 1.1 ASTI's Vision Statement

To be the premier association in Malaysia for the promotion of education and understanding of scientific knowledge, technological advancement and innovative projects, both locally and internationally.

## 1.2 ASTI's Mission Statement

The Association of Science, Technology and Innovation (ASTI) provides leadership in scientific education and technical support to improve and grow awareness in all areas of the science through the generation, dissemination and exchange of information and services.

## 1.3 ASTI's Objectives

- To stimulate the discovery, application and dissemination of knowledge.
- To create an atmosphere in which various segments of the scientific community can freely exchange their knowledge and expertise for the betterment of the community.
- To provide encouragement and support to the younger generation, in particular students, through a variety of activities which are able to help develop creative, inventive and innovative results in science, technology and innovation.
- To recognise outstanding personal achievement in science, technology and innovation within the community.
- To sponsor programmes for challenging and developing youths for leadership responsibilities.
- To undertake projects which contribute towards the development of science, technology and innovation.
- To provide training and solutions to organisations and institutions in the area of science, technology and innovation.

## 1.4 ASTI's Core Values Statement

The members of ASTI are guided in everything we do by the following core values:

- **Alignment to the Nation's Vision**  
To support the country's vision to transform Malaysia into an innovative nation.
- **Commitment to Youth**  
Our youth are our most important resource. Therefore, we encourage continuous learning and development to help empower all youths to be innovative in reaching their full potential.
- **Honesty and Integrity**  
We demonstrate integrity every day by practising the highest ethical standards and by ensuring that actions follow our words.
- **Communication**  
We promote a culture of open-mindedness, where we actively listen, communicate openly, respect the views of others, and encourage all to participate by expressing their thoughts and ideas.
- **Teamwork**  
Success centers on inclusiveness and all involved working together and sharing information and resources to achieve common goals. We value each member and remain united in our successes and failures.
- **Respect**  
We are dedicated in ensuring that everyone is treated with dignity and respect, differences are valued and individual abilities and contributions are recognized.
- **Social Responsibility**  
We are obligated to secure the sustainability of the environment for future generations.
- **Wisdom**  
We cherish wisdom in all our actions drawn from our own traditions and that of others.

## 1.5 ASTI's Guiding Principles

- Long-standing commitment to enhance science education through our association's structure which gives equal attention to science, technology and innovation.
- Building and maintaining a relationship with likeminded societies.
- Building and maintaining synergistic partnerships for the advancement of science, technology and innovation through education and training.

## 1.6 ASTI's Core Activities

Currently, ASTI organizes Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC), Creative and Critical Thinking (CCT) Camp, ASTI Leap Challenge (ALC) and "On the Wings of Fire Series" as its core activities.

### Raising Awareness, Promotion & Training in the field of science

ASTI's membership uses its expertise to conduct training and workshops at various levels on areas related to science, technology and innovation as well as for related subjects. This will be two pronged. One, ASTI will prepare its own training and workshop modules and two, it will also prepare custom training and workshops for specific stakeholders. The training and workshop sessions may be charged to help in raising funds for ASTI.

### Conceptualization, Design & Implementation

ASTI will act as the Secretariat for all projects initiated under ASTI's umbrella. As the Secretariat, it will provide all administrative needs to each project. The expenses incurred by the Secretariat will be funded by the respective project. ASTI will advise the project's Working Committee on the amount of funds to be allocated in the budget for administration and management costs. ASTI may also become a member of other associations for projects not initiated by ASTI, where ASTI is not the Secretariat.

### Advisory & Consultancy

ASTI will use the expertise of its members and supporters to raise awareness on ASTI by taking on advisory roles for projects in the field of science, technology or innovation. To help raise funds for ASTI, it will also promote itself as a Consultancy Provider for a fee. If needed, ASTI may set up a company to do this work. ASTI may also work with other companies or organizations to deliver these outputs.

### Stakeholder Management

ASTI will also use its funds to help sponsor viable projects or research. The decision to do so will be made by ASTI's Committee. The Committee can only approve sponsorship/funds up to RM10,000; anything above this amount will require approval from the AGM. The funding can be in the form of:

- **seed money (Social Enterprise)**
- **sponsorship**
- **loan (Social Enterprise / Project Funding)**

The Committee will also decide on the role ASTI should play in these projects if funding is given by ASTI.

ASTI will act as Funding Advisor to all projects initiated by ASTI. ASTI will also act as Funding Advisor for third parties for a fee in order to raise funds for ASTI.

# 2 STRUCTURE ORGANIZATION

## 2.1 Membership

In order for ASTI to maintain a high level of expectancy from both members and the public it deals with, membership will be strictly controlled and kept at an optimal number.

## 2.2 Committee

<b>President</b>	: Dr. Mohamed Yunus Yasin
<b>Vice-President</b>	: Dr. Subramaniam Gurusamy
<b>Secretary</b>	: Ms. Umahsankariah Muthunaikar
<b>Assistant Secretary</b>	: Ms. Vanitha Vasu
<b>Treasurer</b>	: Lt. Col. Dr. Vikneswaran Munikanan (R)

### **Committee Members :**

- 1) Dato' CM Vignaesvaran Jeyandran
- 2) Mr. Nadaraja C. Kalimathu
- 3) Mr. Saravanan Vimalanathan

## 2.3 Honorary Auditors

- 1) Mr. Suresh Ramasamy
- 2) Mr. Anandan Shanmugam

As required by ASTI's Constitution, the auditors have dutifully examined ASTI's annual accounts for the Financial Year 2018/2019 and approved them.

## 2.4 Advisory Panel

The ASTI Committee shall invite person(s) to be a member of ASTI's advisory panel. ASTI's advisory panel is made up of community leaders and independent experts in the industry.

The role of the advisory panel is to advise ASTI on:

- developing professionalism and leadership in its area of work
- the implementation of its projects
- the further development of existing and future projects for ASTI
- to help resolve potential disagreements within ASTI when required

In addition to the above, ASTI also hopes that its advisors will be the ambassadors for ASTI in order to facilitate the achievement of the association's mission and objectives.

ASTI's advisory panel consists of the following members:

### Honorary Advisor:

- 1) Datuk Seri Panglima Wilfred Madius Tangau, Minister of MOSTI (Former)
- 2) Dato' P Kamalanathan P.Panchanathan, Deputy Minister of Education (Former)

### International Advisor/ Business and International Linkages

- 1) Dato' Seri Abdul Rahman Maidin, Honorary Consul Office of South Africa
- 2) Mr. Mohamed Al-Harthy, Former Chief Executive Officer at Oman Society for Petroleum Services

### Advisor : Organization Development

- 1) Y.Bhg. Datuk B. Sahadevan (*National Land Finance Corporate Society*)
- 2) Dato Sri Suresh Emmanuel Abishegam (*Azimuth International*)

Advisor : **Legal** - Mr.Saravana Kumar (*Lee Hishammuddin Allen & Gledhill*)

Advisor : **PR and Media** - Y.Bhg Datuk A. Sothinathan (*Uma Publication*)

Advisor : **Science, Physics** - Prof. Kurunathan Ratnavel (*University of Malaya*)

Advisor : **Technology and Economics** - Prof. Rajah Rasiah (*University of Malaya*)

Advisor : **Intellectual Property** - Mr. Naidu Appanan (*Mahel Naidu & Associates*)

Advisor : **Training and Development** - Mr. Thiagaraja S. Rengasamy (*K-Pintar Sdn. Bhd.*)

Advisor : **IR 4.0** - Mr. S.T. Rubaneswaran (*Knowledgecom Corporation Sdn. Bhd.*)

Advisor : **Agricultural Science & Business** - Mr.Tee Meng Yee (*Standards Services LLC, USA*)

### Advisor : General

- 1) Y Bhg Datuk Florence Goh (*Care United Johor Bahru*)
- 2) Mr. Sathish Ramachandran (*Advocate & Solicitors*)



Advisor : **SJK(T)s Empowerment and India Engagement**

- 1) Mr. Paskaran Subramaniam

**Northern Region Advisory Council:**

- 1) Dato' Seri Abdul Rahman Maidin
  - ASTI's International Advisor,
  - Honorary Consul Office of South African
- 2) Dato' Dr. Toh Kin Woon
- 3) His Excellency Lio Chee Yeong
  - Lawyer, Honorary Consul of Denmark
- 4) His Excellency Teoh Seng Lee
  - Honorary Consul of Russia
- 5) Dr. Jayabalan A/L A. Thambyappa
  - Doctor and Director of Klinik Inderawasih,
  - Chairman of Hasac (*Health and Safety Advisory Centre*)
- 6) Dr. T Kanagesvaran A/L Thuraiappah
  - Consultant Orthopaedic Surgeon
- 7) Dr. Dzul Azri Bin Mohamed Noor
- 8) Mr. Chan Huan Ping
- 9) Dr. Zulkafli Jalil



# 3 PROGRAMMES ACTIVITIES

## 3.1 Science Fair for Young Children (SFYC)

### 3.1.1 History of SFYC

Science is the systematic study of nature and there are still so much knowledge to be gained. While scientific facts are important, if the methods employed to discover or learn them are incomplete, this could hamper the gaining of scientific knowledge.

We use our five senses, sight, taste, smell, touch and hearing, to explore the world around us. As Edwin Hubble, the American astronomer who first demonstrated the existence of galaxies outside the Milky Way, once said 'equipped with his five senses, man explores the universe around him and calls the adventure science'. Our senses are the gateway keys to the world of science, 'observation' by all our senses.

Students learn science with greater interest when it is more 'hands-on' or experimental, whereby they are led on a path of discovering scientific truths as they seek to satisfy their curiosity.

Science fairs are ideal as they give students an opportunity to learn a scientific concept in greater depth and at the same time allowing them to:

- use scientific methods to develop an understanding of scientific skills;
- take an open and creative approach to problem solving;
- create/increase awareness, interest, motivation in the study of science in school;
- sharpen their writing skills and their ability to work in a team, to plan and execute tasks;
- develop their soft skills as public speaking, which they present projects to schoolmates and judges;
- improve their own learning process in critical thinking based on experience and project;
- collaborate and compete, and be recognised for academic achievement; and
- the judging process provides students with the invaluable experience of developing poise and thinking on their own feet.

In 2003, a team was set up to organise “Young Scientific Explorers”, whereby a group of volunteers visited schools to demonstrate simple yet exciting projects to students followed by a trip to the National Science Centre. Upon its success, and recognising the benefits of a science fair, we initiated Science Fair for Young Children in 2006.

A team of scientists and educationists was formed and tasked with developing the concept, materials and the supporting structure to implement a pilot project. The following year, the first SFYC was held at Dewan Tunku Canselor, University Malaya and it was a big success with 49 teams from Selangor and Wilayah Persekutuan taking part. The enthusiasm shown by the participating students was simply electrifying!

SFYC was then expanded nationwide in 2008 with 197 teams from eight states participating. The final event was held at the National Science Centre, and was graced by the then Chief Secretary of the Education Ministry, Tan Sri Dr. Zulkurnain bin Haji Awang. Since 2008, the program has grown to encompass larger amount of schools for School Level, Zone Level and National Level Science Fair.

### **Objectives of SFYC 2019**

SFYC 2019 has the following objectives:

- To arouse and cultivate students' interest in learning Science.
- To train the students to understand science and scientific methodology through hands-on experiments.
- To enhance 21st Century Skills among students.
- To develop the students' awareness and concern on scientific issues in environmental and technological contexts.
- To train science teachers to develop and design their own science projects.
- To encourage science teachers to organise Schools Level Science Fair.

### **3.1.2 School Level Science Fair (SLSF)**

For 2019, an online link on SLSF was prepared with the SLSF proposal format forms, sample proposals, experiments, sample reports, judging criteria, guidebook for parents and teachers and modules to be used by participating schools. The link was sent to all the teachers via email and WhatsApp application. We also uploaded the link in SFYC's website.

This year, schools that confirmed its participation by sending their proposal to ASTI Secretariat were given seed funding in the form of medals and certificates. The number of medals and certificates distributed was according to the number of students. The medals and certificates were sent directly to the schools from ASTI secretariat.

The schools were given from March 2019 until September 2019 to organise School Level Science Fair in their schools. This year a total of 236 schools out of 524 Tamil schools organised School Level Science Fair in their schools.

### **3.1.3 Zone Level Science Fair (ZLSF)**

This year ASTI created a new look for Zone Level Science Fair. The fair was conducted through Hands-On Experiment method. The registration was open to all the Tamil schools over the nation. Schools registered for ZLSF participation one week after Teachers Training was held in the respective zones. A total of 271 schools participated in the fair this year.

This year, students were given two hands-on experiments to be carried out. Each experiment took 1 hour and 30 minutes to be completed. Students conducted the given experiments and answered all the questions that followed. All the experiments were based on their syllabus. The apparatus and material for the experiments were provided by ASTI. Judging was purely based on the answer sheet.

The Zone Level Science Fairs were held in April and May 2019. Seventy schools were selected to compete at the national level competition. The shortlisted schools for the National Level Science Fair were given sufficient time to improvise their skills to carry out an experiment.

### **3.1.4 National Science Fair for Young Children**

#### **Event Day Summary**

##### **27th July 2019, Saturday**

The event began on 27th July 2019 with Registration. Registration started at 7.30 a.m. until 8.30 a.m. A goodie bag containing tags, food coupons, 2018 ASTI Annual Report, 2018 Science Fair Annual Report and ASTI Project pamphlet was given to each school during registration. This was followed by breakfast and students started to setup their booth. The Hands-On Experiment started at 9.30 a.m. and ended at 11.00 a.m. It was compulsory for all the selected 70 schools to participate in this session. Students were given questions and the apparatus to carry out an experiment within 1 hour and 30 minutes.

Teachers Sharing Session was held from 9.00 a.m. to 4.00 p.m. Mr. Manimaran Subban and Mrs. Devi Govindasamy conducted a few fun based activities during the session. Teachers enjoyed the activities. Best 3 teams were selected and prizes were given to the teams.

This year, the judges were led by Chief Judge, Dr Jimmy Nelson. A judges briefing was made by the Chief Judge regarding the score form that was used for the event. Booth Judging started at 11.30a.m. until 4.00 p.m.

The Opening Ceremony began at 4.30 p.m. The Guest of the Honour for the opening ceremony was YB Dato' Dr. Xavier Jayakumar, Minister of Water, Land and Natural Resources. YB Dato' Dr. Xavier Jayakumar arrived at 4.30 p.m. Before the opening ceremony, YB Minister visited the booths. The opening ceremony began with the Welcoming Speech by Mr. Subaash Krishnan the Project Director of SFYC 2019. The champion of 2018, SJK(T) Taman Tun Aminah, was invited to the stage to hand over the challenge trophy. The students were escorted by SFYC Mascot, Arivan to the stage. The trophy was handed over to the Guest of Honour. The gimmick for the competition was launched by the Guest of Honour. It was followed by a Key Note Speech by YB Dato' Dr. Xavier Jayakumar.

##### **28th July 2019, Sunday**

The second day of NSFYC began at 8.30 a.m. with breakfast. Breakfast was served from 8.30 a.m. until 9.30 a.m. After that, Second-Round Judging session started. It was held until 11.00 a.m. Public viewing was held simultaneously from 9.30 a.m. to 12.30 p.m. Lunch was served from 12.30 p.m. until 1.30 p.m. for the teachers and students. A few other exhibitors showcased their products and services at the hall too. The exhibitors were Uma Publication, Boden Edu Farm, Ilmu Asasi Sdn. Bhd., Cuberlab Sdn. Bhd., LTT Global Communications Sdn. Bhd. and Ascendance.

The Closing and Prize Giving Ceremony began at 2.00 p.m. with the opening remark by Mr. Subaash Krishnan. The Guest of Honour for the Closing and Prize Giving Ceremony was YB Senator Tuan Waytha Moorthy, Minister of National Unity and Social Wellbeing. Token of appreciation was given to our funders by YB Senator. Thereafter, the Guest of Honour, YB Senator Tuan Waytha Moorthy, was called on to the stage to deliver his speech and followed with a gimmick launching.

### **Ramanujam Award Presentation**

The Ramanujam Award presentation was done to selected teachers. Ramanujam Award is presented to honour teachers who had contributed to their students achievements in science advancement in their schools and community as well as in other national and international science competitions. As an appreciation Dr. Subramaniam Gurusamy invited the teachers to the stage with a brief story about each teacher. This year winners were, **Ms. Komathy Nalianse** (SJK(T) Taman Tun Aminah), **Ms. Sangkeri Gannasen** (SJK(T) Kinrara), **Ms. Parwazi Ayakanoo** (SJK(T) Vageesar) and **Ms Puvaneshvari Aramugam** (SJK(T) Taman Tun Aminah).



### **Announcement of winners**

There were 2 categories of winners in this year's Science Fair competition, the Innovation Challenge category and the NSFYC winners. All categories were judged by capable judges. The three (3) winners of the Innovation Challenge category received certificates and cash prizes worth RM 500, RM300 and RM 200 respectively.

The Platinum Award winner of NSFYC received a trophy, medals, certificates, cash prize of RM 1,500 together with the SFYC Challenge trophy. The 2 Gold Award winners received trophy, medals, certificates and cash prize of RM 1,000 each. Meanwhile, the 3 Silver Award winners received trophy, medals, certificates and cash prize of RM700 each. The 4 Bronze Award winners received trophy, medals, certificates and cash prize RM500 each. All the other participants received certificate of Ruby Award and a medal of participation. Teachers received their certificate of appreciation too.



Announcement of winners:

**Platinum Award** - (Trophy, Certificates, Medals and RM1500 Cash Prize)

**SJK(T) Jalan Sungai, Penang**



**Gold Award** - (Trophy, Certificates, Medals and RM1000 Cash Prize)

**SJK(T) Taman Tun Aminah, Johor**

**SJK(T) Jalan Yahya Awal, Johor**



**Silver Award** - (Trophy, Certificates, Medals and RM700 Cash Prize)

**SJK(T) ST Theresa's Convent, Perak**  
**SJK(T) Ladang Kulai Besar, Johor**  
**SJK(T) Segambut, Kuala Lumpur**



**Bronze Award** - (Trophy, Certificates, Medals and RM500 Cash Prize)

**SJK(T) Ladang Mentakab, Pahang**  
**SJK(T) Bandar Baru Salak Tinggi, Selangor**  
**SJK(T) Castlefield, Selangor**  
**SJK(T) Kangkar Pulai, Johor**



**Innovation Challenge category**

**Champion** : **SJK(T) Ladang Sungai Tekal, Pahang**  
**1st Runner up** : **SJK(T) Kangkar Pulai, Johor**  
**2nd Runner up** : **SJK(T) Castlefield, Selangor**



### 3.1.5 Conclusion

On the whole, SFYC 2019 was a great success. A total of 236 schools successfully participated in School Level Science Fairs in 9 states out of 524 total schools in Malaysia. Meanwhile, 275 schools took part in the Zone Level science Fairs held in 9 zones nationwide. The National Science Fair for Young Children took place on 27th and 28th July 2019 at SJK(T) Effingham, Petaling Jaya.

## 3.2 Young Inventors Challenge (YIC)

### 3.2.1 Background

The Association of Science, Technology, and Innovation (ASTI) is a non-governmental and non-profit oriented organization (NGO) working towards empowering young peoples' interest in science through the act of doing where learning is achieved from discovering scientific principles by themselves. In order to achieve this vision ASTI has experimented with various projects and has successfully gained traction on programs such as the Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC), Creative, and Critical Thinking Camp (CCTC), and others. Each of these programs is interlinked in order to provide a platform for participation for a person that is holistic and inclusive in nature depending on the individual's stage of development.

YIC is in line with this vision, where it requires teams of up to 4-5 members to put their minds together and come up with an invention. The purpose of the program is to build and encourage the creative and inventive capability of young people. ASTI started this program in 2013 as a pilot where 12 teams participated from 12 schools, and the response has been remarkable ever since – the project has been growing at almost 100 percent year on year with over 100 teams participating and the number of students exposed to the program reached 3000 persons. ASTI is proud to mention that Young Inventors Challenge has received recognition from the Ministry of Education Malaysia for the year 2017 and 2018.

- The Young Inventors Challenge 2013 (YIC 2013) theme was "**GREEN INVENTIONS: IDEAS ON SUSTAINABILITY**". A total of 12 teams from all over the country participated in this pilot project, showcasing their green inventions at Wisma Belia on the 24th August 2013.
- In 2014, the theme was kept the same; "**GREEN INVENTIONS: IDEAS ON SUSTAINABILITY**" and a total of 49 teams participated in the Grand Finale which was held at Dewan Dr.Siti Hasmah, Rumah Puspanita on the 20th September 2014.
- For 2015, ASTI expanded the competition more, and the theme was "**INVENTIONS TO HELP A MILLION: TO MAKE THE WORLD A BETTER PLACE**". A total of 145 proposals from various teams were received, and 63 teams were shortlisted to participate in the Grand Finale. The final competition was held at Sunway University on 19th September 2015. The Grand Finale was attended by 52 teams from all over the world.
- A new theme "**INVENTION TO SERVE ...**" was introduced in 2016. We received 204 proposals from 292 registrations. To compete in the Grand Finale, we shortlisted 80 teams. The selected teams received training sessions in Penang, Johor, Pahang, KL & Selangor, Sabah, Sarawak and the Philippines. The final competition was held at Sunway University on October 15, 2016 with the participation of 67 teams.

- In 2017 ASTI expanded the competition even wider where we targeted 100 teams from Malaysia and ASEAN countries. The theme was kept the same "**INVENTIONS TO SERVE...**" and we received 372 proposals from 480 registrations from 5 countries, Malaysia, Indonesia, Singapore, Thailand and Philippines. We shortlisted 117 teams to participate in the Grand Finale. Online Students Training was conducted from May-June 2017 for the shortlisted teams. The final competition was held on 30 September 2017 at the CIDB Convention Centre, Cheras, with 102 teams participating.
- In 2018, the theme was maintained as "**INVENTIONS TO SERVE...**". The project has been implemented in three phases.: Phase One: The student's proposal submission; we received 634 applications, of which 438 teams submitted various invention proposals. Phase Two: Online Students Training session for selected participants; online training for the chosen teams consists of 5 training videos. Final Phase: Grand Finale; The Young Inventors Challenge 2018 Grand Final took place on 22nd September 2018 at the CIDB Convention Centre, where a total of 126 teams from all over Malaysia, the Philippines, Thailand, Singapore, Indonesia and China participated.

YIC 2019 is our 7th-year event, and we launched a new theme, **SUSTAINABLE DEVELOPMENT GOALS (SDGs)**. This year, we received 446 applications, of which 286 teams submitted various invention proposals. We shortlisted 151 teams with the best invention ideas from all over Malaysia, the Philippines, Thailand, Singapore, Indonesia, Brunei, Vietnam, China and Timor Leste to compete in the Grand Finale. The Grand Finale took place on 21st September 2019 at the Malaysian Global Innovation & Creativity Centre (MAGIC) with 132 teams showcasing and presenting various innovation ideas.



### 3.2.2 Objectives and Learning Experience of YIC 2019

The aim and objectives of YIC are:

- to develop future inventors;
- to give an opportunity to young and future inventors to develop and showcase their inventions;
- to help young inventors to experience the inventive cycle, from conceptualisation to product/prototype;
- to introduce the idea of "using inventions as a tool to make a positive change in society"; and
- to give opportunities to young people who are inventive to promote their ideas to the outside world.

By participating in YIC, the participants would also:

- produce an original invention and receive recognition for participating in the event.
- meet and network with other inventors who share a similar passion.
- develop creative and innovative thinking skills.
- develop teamwork dynamics to solve problems.
- use resources such as the internet, library and experts to hone their research skills.
- learn to document their invention project.
- enhance self-esteem and confidence.
- acquire public presentation and writing skills.

### 3.2.3 Training for Shortlisted Teams

Online Training Videos were published every Monday, starting from June 3rd, 2019. Below is the list of published videos for training:

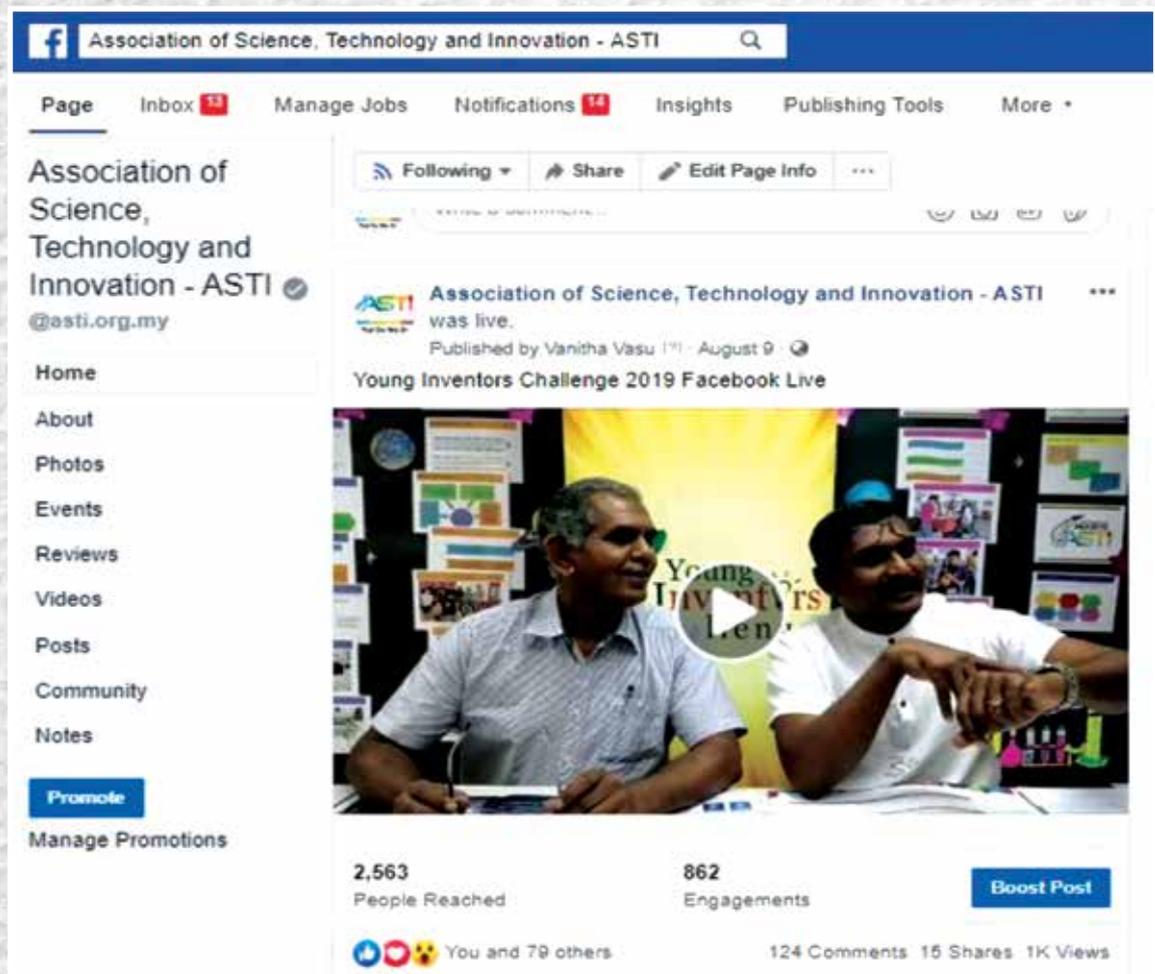
Publishing Dates	Training Video	Title
3rd June 2019	Training Video 1	The YIC Journey
10th June 2019	Training Video 2	Invention and Intellectual Property
17th June 2019	Training Video 3	Project Management and Report Writing
24th June 2019	Training Video 4	Mentoring
1st July 2019	Training Video 5	Judging Criteria and Report Structure

**Table 1:** List of Training Videos



## Facebook Live Training

- For the first time, the YIC 2019 working group committee decided to provide Facebook Live Training for the shortlisted participants.
- The Facebook Live Training was conducted on Friday, 9th August 2019 from 7.00 p.m. to 8.30 p.m.
- Mr. Anandan Shanmugam and Mr. Ramesh Subramaniam participated in and shared with the participants some guidance and tips on the final preparations for the Grand Finale.
- The Facebook live training reached up to 2,563 people and the response was overwhelming.



The screenshot displays the Facebook interface for the page 'Association of Science, Technology and Innovation - ASTI'. The post is titled 'Young Inventors Challenge 2019 Facebook Live' and was published by Vanitha Vasu on August 9. The video thumbnail shows two men, Mr. Anandan Shanmugam and Mr. Ramesh Subramaniam, sitting at a table during the live training session. The post has achieved 2,563 people reached and 862 engagements. The engagement statistics are as follows:

Metric	Value
People Reached	2,563
Engagements	862

Additional engagement details include 124 comments, 15 shares, and 1K views. The post is shared by 'You and 79 others'.

### 3.2.4 Event Day Summary

#### Arrival, Registration and Breakfast

YIC 2019 was held on 21st September 2019 at the Malaysian Global Innovation & Creativity Centre (MAGIC). Participants began arriving as early as 6.30 a.m., and the registration started at 7.00 a.m. Upon completion of the registration process, breakfast was offered to the participants. A total of 132 teams registered for the competition. Participants were allowed to set up their booths and models of innovation after the registration and breakfast sessions.



#### Booth Setup, Model Setup, Opening Ceremony and Judging

Upon setting up the booths and models, the opening ceremony took place at approximately 9.15 a.m. Following the opening ceremony, the winners of Best Proposal Write-Up, Invention Pitch Video Competition and Project Paper Writing Competition were announced.

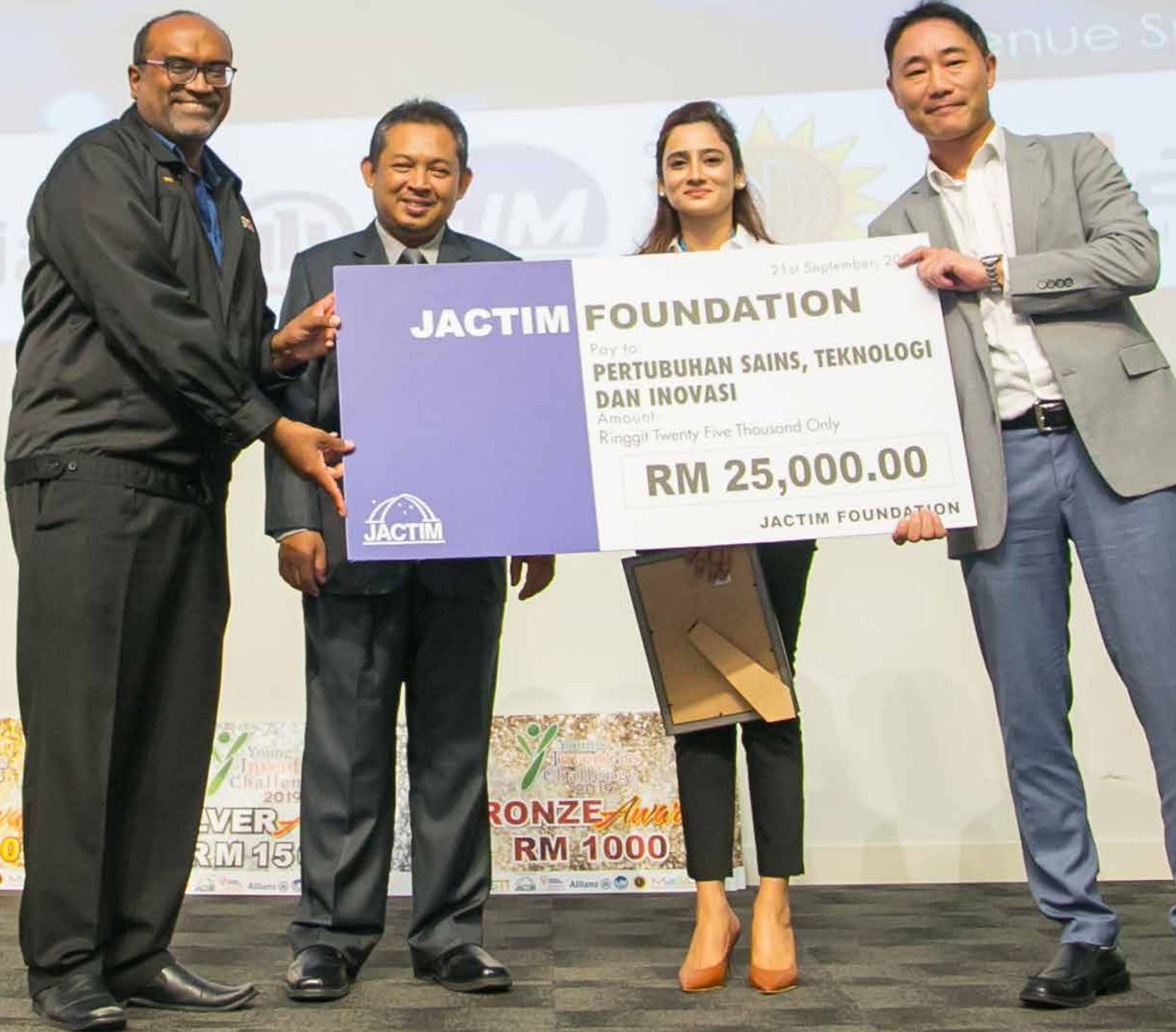


## Judging

The Judging process took place at 10.00 a.m. The inventions were judged by more than 90 judges, which included university lecturers, scientists, environmental consultants, intellectual property experts, etc. The participants presented various inventions during the judging process which lasted almost 2.5 hours.



2019  
September 2019  
pm - 4.30 pm  
novation & Creativity Cen



21st September, 2019  
**JACTIM FOUNDATION**  
Pay to:  
**PERTUBUHAN SAINS, TEKNOLOGI  
DAN INOVASI**  
Amount:  
Ringgit Twenty Five Thousand Only  
**RM 25,000.00**  
JACTIM FOUNDATION

Young Inventor Challenge 2019  
SILVER Awardee RM 15000  
JACTIM Young Inventor Challenge 2019  
BRONZE Awardee RM 10000

## Mentor Seminar Session

This year's mentor seminar focused on 'The Future of Learning' and was attended by all the mentors. The Mentor Seminar Session took place at the Auditorium from 10.30 a.m. till 1.00 p.m., while the judging and cross judging process was going on. Below is the agenda of the Mentor Seminar Session.

Time	Topic of Discussion	Speaker
10.30am to 10.45am	Introduction to ASTI and YIC	<b>Dr.Mohamed Yunus Yasin</b>
10.45am to 11.20am	<b>Session 1:</b> <b>"STEM Education – Immersive Technology &amp; Coding"</b> <ul style="list-style-type: none"> <li>Immersive Learning Technology</li> <li>Robotics and coding</li> </ul>	<b>Ms. Latha Thangaraja</b> STEM Education Senior Coordinator Almotahida Education Group Sdn Bhd  <b>Ms. Simran Kumar</b> STEM Education Coordinator Almotahida Education Group Sdn Bhd
11.20am to 11.50am	<b>Session 2:</b> <b>"Don't Let School Interfere with Your Learning"</b>	<b>Mr.Pramugh Pathmanaban</b> Founder Director Engineering For Kids Malaysia
11.50am to 12.30pm	<b>Session 3:</b> <b>Integrating 3D Printing into Classroom Teaching</b>	<b>Mr. S. Kumar</b> Chief Executive Officer Cuberlab Sdn Bhd
12.30pm to 12.40pm	Mentor Sharing Session	<b>Mr. Anandan Shanmugam</b>
12.40pm to 1.00pm	Certificate Presentation	<b>Mr. Anandan Shanmugam</b>

*Table 2: Agenda of Mentor Seminar Session*

## Certificate Presentations to Mentors

At 1.00 p.m., the hall was opened to the public. The public were allowed to visit the booths and ask questions if they had any. All the teams that participated were presented with Certificates of Participation by our special guests at their respective booths.



## **Public Viewing**

The exhibition was opened to the public from 1.00 p.m. to 3.30 p.m. The public was allowed to visit the booths and ask questions to the participants.

## **Prize Giving Ceremony**

Our Guest of Honour Dr. Anis Bin Mahmud, Deputy Secretary General (Policy and Entrepreneur Strategy) Ministry of Entrepreneur Development arrived at 3.00 p.m.

The VIPs and Guests who attended the event are listed below:

**Her Excellency Samkelisiwe Mhlanga,**

*High Commissioner*

*South Africa High Commission*

**Mr. Masahito Hirai,**

*Director and International Cultural Exchange (ICE) Committee Chairman,*

*Jactim Foundation*

**Ms. Dzuleira Abu Bakar**

*Chief Executive Officer*

*Malaysian Global Innovation & Creativity Centre (MAGIC)*

**Mr. Razif Aziz**

*Acting Group Chief Executive Officer*

*Cradle Fund Sdn. Bhd*

**Mr. Hikaru Shigematsu**

*YIC Support In-Charge Committee Member ICE Committee*

*Jactim Foundation*

**Mr. Kazuki Kimoto**

*Secretary General,*

*Jactim Foundation*

VVIPs and Guests visited the booths, and the participants were delighted to present their invention ideas to them. Our special guests presented certificates of participation to all the teams at their respective booths.

Ms. Sook Hwa and Ms. Mathura Lakshmi was the Master of Ceremony for the Closing & Prize Giving Ceremony.

Before the Prize Giving Ceremony began, few of our dignitaries gave their speeches. Mr. Anandan Shanmugam was first to give the opening remarks. He said the teams that have participated in YIC in the past have gone abroad and won competitions at international levels such as in Hong Kong. He added that YIC should not be the end, and the students should continue their invention journey.

A special multimedia presentation on the journey of YIC 2019 was broadcasted to all the guests and participants after the speech by Mr. Anandan Shanmugam.

The Guest of Honour Dr. Anis Bin Mahmud, Deputy Secretary-General (Policy and Entrepreneur Strategy) Ministry of Entrepreneur Development was then invited to give Tokens of Appreciation to the funders of YIC 2019.

*The recipients of the Token of Appreciation as listed below:*

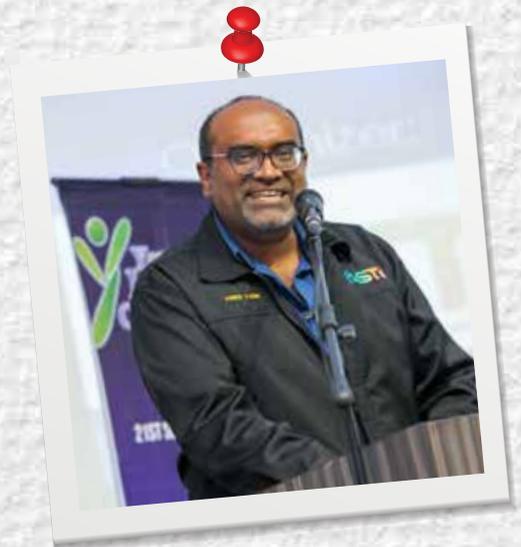
- **Ms. Dzuleira Abu Bakar**  
*Chief Executive Officer  
Malaysian Global Innovation & Creativity Centre (MAGIC)*
- **Mr. Masahito Hirai**  
*Director and International Cultural Exchange (ICE) Committee  
Chairman, JACTIM Foundation*
- **Mr. Ramesh Subramaniam**  
*IJM Corporation Berhad*

After having completed with the appreciation for the funders, Dr. Mohamed Yunus Yasin gave a token of appreciation to our Guest of Honour.

The event was followed with the judges feedback and remarks which were presented by Mr. Faizal Noor Batcha, one of the Chief Judges of YIC 2019. He mentioned in his speech that because of so many amazing inventions, the judges had a hard time judging the participants. He added that the judgment was focused on creativity, innovation, competence in presentation and safety measures. He passed the results to the emcees after his speech.



Thanking Remark was delivered by Dr. Mohamed Yunus Yasin. In his speech, he urged the participants not to give up and continue their creative journey, regardless of the outcome. He also thanked everyone involved in YIC 2019 in making the event a great success, including the volunteers.



The award ceremony continued with the presentation of awards to the winning teams for the Bronze Award category, Silver Award category, Gold Award category and Platinum Award category. The details of the winning teams are as below:

**Platinum Awards Winner**

School Name : **Philippine Science High School-Socccskargen Region Campus**  
Country : **Philippines**  
Team Name : **Paraiso**  
Invention Title : **Autonomous Radiation Monitoring And Data-Logging Aquatic Vehicle (Armadav)**



**Gold Awards Winners**

School Name : **A group made up of one student from SMK Bandar Utama 3, SMJK Katholik, SMK Damansara Jaya, Wesley Methodist School Kuala Lumpur (International), Arrows Resource Centre**  
Country : **Selangor, Malaysia**  
Team Name : **Nighthawk**  
Invention Title : **Chef De- Bot**

School Name : **SMA Negeri 1 Kedungpring**  
Country : **Indonesia**  
Team Name : **Santi Basuki**  
Invention Title : **Biofoam Engkong (Biodegradable Foam From Water Hyacinth As Main Ingredients)**



### **Silver Awards Winners**

School Name : **Phillipine Science High School Western Visaya Campus**

Country : **Philippines**

Team Name : **Voltage 5**

Invention Title : **S-Light**

School Name : **SMK Seri Pagi Seremban**

Country : **Negeri Sembilan**

Team Name : **Hbs Crew**

Invention Title : **Habox**

School Name : **Philippines Science High School-Central Visaya Campus**

Country : **Philippines**

Team Name : **Safetym**

Invention Title : **Plantier: An Automated Assistive Planting Device**



### **Bronze Awards Winners**

School Name : **Ngo Si Lien Secondary School**

Country : **Vietnam**

Team Name : **The Guardian**

Invention Title : **Garboat- Robot Boat Picks Up Garbage On The River.**

School Name : **Kolej Datu Patinggi Abang Haji Abdillah**

Country : **Sarawak, Malaysia**

Team Name : **The Innolyst**

Invention Title : **Chalky All The Way**

School Name : **Sekolah Menengah Sains Kuala Selangor**

Country : **Selangor**

Team Name : **Neutron**

Invention Title : **C.Y.P.A.A. (Charge Your Phone Anytime And Anywhere)**

School Name : **Shalom Crest Wizard Academy**

Country : **Philippines**

Team Name : **Albacares**

Invention Title : **Lumos Altium**



# an Airborne Water Harvester

Ng Shi Yu, Sean Tan, Naythan Yeo



## TESTING THE CONDITIONS

Flow rate

Concentration

The ideal flow rate of the pump was 75%

The ideal concentration of coolant to use was 15%

## IMPLEMENTATION

We found that our system can be self-powered with solar panels. Its power consumption is 10 times less than a regular distillation plant. They can be implemented and placed in isolated systems like ships, or situations with water shortage. Although more land area is required, this system would supply and power a community and self-sustained water source.

## 24 HOUR TEST FOR EFFICIENCY

## CONCLUSION

In conclusion, we have tested the efficiency of the system, and proved it through a series of tests. We found that the system is able to be self-powered. It has a very low power consumption.

## ACKNOWLEDGMENTS

We would like to thank our sponsor, Mr. Tan Hock Tack, Mr. Tan Hock Tack, Mr. Tan Hock Tack, and dedicated staff.

## PARTS LIST

1. Solar panel

2. Pump

3. Copper coil

4. Insulation

5. Water container

6. Power supply

7. Wires

8. Glue

9. Tape

10. Screws

11. Bolts

12. Nuts

13. Washers

14. Gaskets

15. Seals

16. O-rings

17. Springs

18. Valves

19. Fittings

20. Connectors

21. Adapters

22. Cables

23. Terminals

24. Switches

25. Relays

26. Diodes

27. Transistors

28. Resistors

29. Capacitors

30. Inductors

31. Transformers

32. Motors

33. Generators

34. Batteries

35. Chargers

36. Inverters

37. Converters

38. Amplifiers

39. Oscillators

40. Timers

41. Relays

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308. Motors

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310. Batteries

### **Project Proposal Write-Up**

We received 286 proposals from 446 registrations from 10 countries which include Malaysia, Indonesia, Singapore, Thailand, Philippines, Myanmar, Brunei, Vietnam, Timor Leste and China. We shortlisted 151 teams to participate in the Grand Finale. We decided to give recognition to the top three teams for best proposal write-up and the details are as shown below. There are two teams sharing the 3rd placing.

#### **Winner**

School Name : **Philippine Science High School, Cordillera Administrative Region Campus**  
Country : **Philippines**  
Team Name : **Siomai Oryza Sativa-Bayanihan**  
Invention Title : **Bahay Kubo: Internet of Things (IoT)-enhanced Arduino-Based Greenhouse for Sustainable Agriculture**

#### **1st Runner Up**

School Name : **Bayambang National High School, Bayambang**  
Country : **Philippines**  
Team Name : **COC - Catalysts Of Change**  
Invention Title : **TiO<sub>2</sub> ReCon: Catalytic Reaction of Titanium Dioxide Nanoparticles – Equipped Detachable Converter for Greenhouse Gases Reduction and Oxygen (O<sub>2</sub>) Conservation**

#### **2nd Runner Up**

School Name : **Kolej Datu Patinggi Abang Haji Abdillah Kuching**  
Country : **Sarawak, Malaysia**  
Team Name : **Stardust Crusaders**  
Invention Title : **Star Platinum**

School Name : **SMK Merapok, Lawas**  
Country : **Sarawak, Malaysia**  
Team Name : **The I-Novator**  
Invention Title : **Super Bicycle (Super-B)**



## **Invention Pitch Video Competition**

The participating teams were given an opportunity to use 3-minute video to pitch their invention, but it was not made compulsory. The primary purpose of this competition is to give participants an exposure to the creation of a pitch video.

The following guidelines were given to participants to make a pitch video.

- Who You Are? Introduction to Your Team
- What is your invention?
- What is the problem your invention is solving?
- What are the advantages of your invention (compared to other solutions)?
- Why is this an important problem to solve and how does it affect the end-user?
- How your product is going to improve the world by fixing this problem? How does the world look after your solution is implemented? Is everyone happy?
- How are you solving the problem differently?
- What have you done so far to capture new users and how will this evolve over time?

The details of the winning teams are as follows:

### **Champion**

School Name : **Philippines Science High School-Central Visayas Campus**  
State/Country : **Philippines**  
Team Name : **Agriprotech**  
Invention Title : **Cropprotec: A Modular Crop Monitoring And Protection System**

### **1st Runner Up**

School Name : **Sma Negeri 1 Kedungpring**  
State/Country : **Indonesia**  
Team Name : **Santi Basuki**  
Invention Title : **Biofoam Engkong** (*Biodegradable Foam From Water Hyacinth As Main Ingredients*)

### **2nd Runner Up**

School Name : **Bayambang National High School**  
State/Country : **Philippines**  
Team Name : **Coc: Catalysts Of Change**  
Invention Title : **Tio2 Recon: Catalytic Reaction Of Titanium Dioxide Nanoparticles – Equipped Detachable Converter For Greenhouse Gases Reduction and Oxygen (O2) Conservation**



### **Project Paper Writing Competition**

Three-page project paper was requested from the participating teams, but it was not made compulsory. The main objective of this competition is to introduce the concept of writing paper to the participants. A total of 49 teams participated in this competition, and a separate Judging panel was assigned to evaluate the paper. Three best project papers have been chosen, and the winning team details are as follows:

#### **Champion**

School Name : **A group made up of one student from SMK Bandar Utama 3, SMJK Katholik, SMK Damansara Jaya, Wesley Methodist School Kuala Lumpur (International), Arrows Resource Centre**  
State/Country : **Selangor, Malaysia**  
Team Name : **Nighthawk**  
Invention Title : **Chef De Bot-A Smart Kitchen Integrated With Internet of Things Technology**

#### **1st Runner Up**

School Name : **Philippines Science High School-Central Visaya Campus**  
State/Country : **Philippines**  
Team Name : **Safetym**  
Invention Title : **Plantier: An Automated Assistive Planting Device**

#### **2nd Runner Up**

School Name : **Giang Vo Secondary School, Hanoi**  
State/Country : **Vietnam**  
Team Name : **Ocean Team**  
Invention Title : **Immobilization Biofilm Forming Bacteria On Husk Biochar to Remove Oil Pollution**





### 3.2.5 Conclusion

In conclusion, YIC 2019 was a great success. This year, we also received participation from Brunei, Vietnam and Timor Leste. It should be noted that several schools from countries like the Philippines, Thailand, Singapore, China and Indonesia have been participating continuously since YIC 2015.

Our survey shows a high level of satisfaction from all of our stakeholders. We believe that this program shall serve as an excellent platform for young creative and inventive students to showcase their talents and possibly build their career in this area. We are working towards achieving our aim of creating inventors among the students as the participants learnt the concept of invention and innovation.





## 3.3 Creative and Critical Thinking (CCT) Camp / Workshop

### 3.3.1 Background

In recent years, young people have become more of spectators rather than participants in their individual 'learning journey'. We are causing this by overwhelming them with theories and "facts & figures". They have to memorize for tests and exams which they soon forget. The relevance of some of these lessons to their future is not contextualised.

True education must help students awaken and expand their creative and critical minds. It must empower the learners to take charge of their understanding of the world around them. Subjects and topics should just be tools used to nurture this new independent thinking mind. Thus, any subject, be it science or arts, if 'delivered' properly must be able to create this ultimate goal.

Creative and Critical Thinking (CCT) Camp / Workshop was initiated with this in mind, coordinated by a team of experts who have extensive experience in the field of science, technology and innovation as well as Youth Engagement. This camp aims to introduce the concepts of thinking creatively and critically, using logical & empirical reasoning to solve problems and using competitive & collaborative methods to produce an outcome when making choices in any aspect of the participants' lives. These principles are conveyed to participants via indoor and outdoor lessons and fun activities in a "camp" environment.

We conducted a pre-pilot programme for 36 young students after their UPSR programme at the end of November 2013. It was an all-inclusive 3-day 2-night event. Upon its overwhelming success, we fully implemented CCT Camp for all target groups, focussing on primary and secondary students and have been conducting it annually since.



### 3.3.2 Objectives of CCT Camp

- To empower the young to think in both creative and critical manner; it consists of presentations that emphasises activities and 'hands-on' method to help the young build this capacity.
- To build effective resources, guides and know-how to make this a recurring camp for young people across the country.
- To train the young to produce positive outcomes when making choices by using competitive and collaborative methods.
- To help the young realize that learning is fun, not just memorizing facts but by under-standing what they learn.

### 3.3.3 Benefits of CCT Camp

- It is a medium to introduce the concept of thinking creatively and critically when making choices in life and a medium to introduce innovative problem - solving techniques.
- Participant gets to participate in exciting workshop sessions under the guidance of skilled facilitators and instructors.
- Fun outdoor and indoor activities held will help the participants to realize his or her creative and critical thinking capabilities.
- Encourages the use of competitive and collaborative methods to produce positive outcome when making choices and performing tasks.

### 3.3.4 Target Groups and Type of Camps

There are 3 different levels of target groups which are

- Primary School Students ;
- Secondary School Students ; and
- University Students.

There are 2 different types of camps/ workshops, which are:

- **Project Camp/Workshop**  
Students have to send an application to the CCT Committee who will chose the participants. The facilities such as accommodation and food will be organised by ASTI for the participants.
- **Exclusive camp/workshop**  
ASTI will provide the training modules, camp materials and trainers upon request by the organisers of the camp. The participants' selection and logistic arrangements will be done by the organisers.

### 3.3.5 CCT Camp / Workshop 2019 Summary

#### 1) Creative and Critical Thinking (CCT) Project Camp 2019

This year a 3 day 2 night Creative and Critical Thinking (CCT) Camp 2019 was held at Green View Farm, Negeri Sembilan. The camp started on 6th December 2019 (Friday) evening and ended on 8th December 2019 (Sunday) afternoon.

#### Day 1 - 6th December 2019

The day started at 2.30 p.m. with the arrival of the participants at the hall. Participants received their nametag, camp groups, camp schedule, safety outlines, and T-shirt upon arrival. There was a short briefing on camp safety, rules & regulations as well as a briefing on the programme for Day 1. The programme started in the hall at exactly 4.45 p.m. with the participants seated according to their groups. There was an Ice-breaking session conducted for the participants which was to set the tone for the camp to think out of the box. It provided them with a taste of what was to come. After ice-breaking, there was a short tea and prayer break which was followed by the second session of the day: Boosting Your 5 Senses. The participants were then given time to freshen up and dinner was served at 8.00 p.m. After dinner, the participants took part in the evening session which was Mind Mapping & Brainstorming. Day one session was thus over and the participants had their supper and retired for the night. After this, the Event Committee continued with the discussion of the day's event followed by the set-up preparations for the following day.





## Day 2 - 7th December 2019

The 2nd day's activities started at 6.30 a.m. with morning prayers after which the participants had an exercise routine before settling down for breakfast. The first session of the day was Healthy Body and Healthy Mind. This was followed by Boosting Your 10 Intelligences which continued until lunch time. After lunch and a quick warm-up game, the session continued with 5 Reasons Why Humans Are Capable of Becoming Genius and Short Term Memory Tips before breaking for tea and prayers. That evening, we continued with Problem Solving (CSI) session which was highly enjoyed by the children. The participants then returned to the hostel at around 8.00 p.m., relaxed and had dinner. The evening session continued at 9.00 p.m. with the Lateral Thinking module. The participants then retired for the night after having their supper at 10.30 p.m.



## Day 3 - 8th December 2019

On the final day, a yoga session was held after morning exercise session. After such an exhilarating start to the day, the participants were given a morning break followed by the next session Relaxation and Concentration which ended at 10.30 a.m. This was followed by a session on Expressing Your Creativity.

The Camp ended at 1.30 p.m. with the Camp Closing Ceremony during which a certificate of participation and souvenirs were presented to each participant.



## 2) CCT Camp - Science Immersion Program (SIP)

There were 13 participants accompanied by two teachers who arrived from the Philippines at Kuala Lumpur International Airport on the 1st of July 2019. The camp was scheduled to start the next day since the participants were tired from their journey.

The central lectures, briefing and gathering were held mainly at the Cube meeting room of the Research Management & Innovation Complex (RMIC) of University Malaya. The 2 days CCT camp was held from 9.00 a.m. until 10.00 p.m., with breakfast, lunch, tea-time and dinner breaks all included. A total of 8 modules were conducted over the two day period. A survey was conducted to gather feedback from all the 13 participants of CCT Camp at the end of each day on the effectiveness of the two days camp.



## 3) CCT Workshop – SJK (T) Effingham

ASTI organized a 2 days "Creative and Critical Thinking Workshop" at SJK (T) Effingham. The first day workshop started at 9.00 a.m. with the arrival and registration of the participants at the school hall. The programme started with the participants seated according to their groupings of 5-6 students per group. The workshop was conducted by Ms. Vanitha Vasu, Head of Secretariat for the Association of Science Technology and Innovation (ASTI).

Mr. Logan Tamilarasu started the workshop with a briefing session followed by one of CCT Modules entitled "5 Reasons Why Humans Are Capable of Becoming Genius". The aim of this module is to acquire knowledge about the human characteristic and thinking capability which provide the input for creative and critical thinking. Each group were provided with some cards with pictures and also some tricky questions to test the participants thinking skills and also to introduce them to various thinking skills. The first session ended with the participants having their breakfast at 10.40 a.m.

Ms. Vanitha Vasu continued the workshop with the next session which was "Mind Mapping". The aim of this session is to guide and teach the participants on how to develop an effective mind map. Groups were provided with marker pens of various colours and mahjong paper to come up with a mind map entitled "My School Holiday, My Favourite Person". The basic tips on how to create a mind map were shared beforehand. The first day session ended at 1.30 p.m.

Ms. Gayatri Ramakrishnan started the second day at 9.00 a.m. with "Brainstorming" session. The aim of this session is to initiate creative and critical thinking based on the workshop activities, as to summarize the activities throughout the workshop. Each group were given 1 title to brainstorm and discuss among their friends.

Participants were encouraged to let their minds “freewheel” so that new and original ideas would emerge. Tips on how to organize a productive group discussion and brainstorming were also explained and shared with the participants. The first session ended with the participants having their breakfast at 10.40 a.m.

The second session of the second day was conducted by Ms. Vanitha Vasu which was entitled “Boosting Your 5 Senses”. The aim of this module is to acquire knowledge about the 5 senses of the human body which provide input to the brain, which are sight, smell, touch, taste and hearing. This session aims to help develop stronger creativity via all senses, and express an appreciation of the world around them through their new awareness of their 5 senses. Thus, to awaken the participants’ senses, the presenter conducted an activity for each of the 5 senses. The CCT Workshop session ended with thank you speech by the school’s Head Master at 1.30 p.m.



#### 4) CCT Workshop - SJK(T) Jenjarom

On 18 November 2019, ASTI organized "Creative and Critical Thinking Workshop" for SJK(T) Jenjarom. The workshop started at 9.00 a.m. with arrival and registration of the participants at the school hall. The programme started with the participants seated according to their groupings of 7-10 students per group. The workshop was conducted by Ms. Vanita Vasu, Head of Secretary of Association of Science, Technology and Innovation (ASTI).

Ms. Vanita Vasu started the workshop with a briefing session followed by one of CCT Modules entitled "5 Reasons Why Humans Are Capable of Becoming Genius". The aim of this module is to acquire knowledge about the human characteristic and thinking capability which provide the input of creative and critical thinking. Each group were provided with some cards of pictures and also some tricky questions to the students to test the participants on their thinking skills and also encourage them of various thinking skills. The first session ended with the participants having their breakfast at 10.30 a.m.

The second session started at 11.00 a.m. with "Brainstorming". The aim of this session is to initiate critical thinking based on the workshop activities, as to summarize the activities throughout the workshop. Each group was given 1 title to brainstorm and discuss among the group members. Participants were encouraged to let their minds "freewheel" so that new and original ideas would emerged. Tips on how to organize a productive group discussion and brainstorming were also explained and shared with the participants.



All the modules chosen for CCT Camp and Workshops were designed to help develop the following skills:

- socializing
- evidence analysis
- critical thinking
- creative thinking
- comparing
- reasoning
- strategizing
- synthesizing
- sensitivity
- sensory integration
- interpreting
- concentrating
- focusing
- ability to follow instruction
- hypothesizing
- thinking out of the box
- brainstorming
- competitive
- cooperative
- confidence
- communicating
- rhythmic
- coordination
- presentation
- analysing
- idea generation
- mind-mapping
- problem-solving
- physical ability
- emotional control
- alertness
- memorizing
- quick thinking
- eliminating

### 3.3.6 Conclusion

CCT Camps and Workshops enable us to empower our young students to think on their own and develop higher order thinking capacities. It has become a way to equip them further and to ensure their excellence as they progress on to higher studies and the working world.



## 3.4 ASTI Leap Challenge (ALC)

### 3.4.1 Background

ASTI Leap Challenge, ALC, is a pilot project that ASTI initiated with Yayasan Hasanah as the funding partner in 2016. We believe this project, which was for secondary schools, has the potential to help students to achieve higher levels of learning and understanding. The aim of the project is to expose young people to the world of invention and innovation in a very hands-on manner.

ASTI Leap Challenge helps students with their creative thinking, critical thinking and problem solving skills. Schools from Penang & Kedah participated in the Northern region for this pilot project in 2016. Meanwhile schools from Johor state participated in the Southern region in 2017.

As a continuation, for Phase II of the pilot in 2018, we focused on training the teachers and students to conduct their own School Level ASTI Leap Challenge (SL-ALC).

In 2019, schools that participated in ALC 2018 continued to conduct ALC in their schools. Besides that, ALC training for 7 new schools by invitation was also conducted by ASTI in the Simpang Renggam Zone.

### 3.4.2 Objectives of ASTI Leap Challenge

This year, as the continuation of ALC, we trained the teachers from the newly participating schools to conduct their own School Level ASTI Leap Challenge (SL-ALC). Schools that conducted ALC in their schools last year also continued with ALC in their schools this year.

Project Objectives,

- To give an introduction and experience to young people to the world of invention and innovation.
- By participating in this event the students will enhance their creative and critical thinking skills to be able to solve a complex problem which is expressed by 'doing'.
- Enhance problem identification and solving skills among participants.
- Develop communication skills among participants.
- Encourage team work among participants.
- Develop "out of the box thinking" among participants.
- Develop 'hands-on' learning methods for the young people.

Besides that, the programme also prepares and encourages the students to participate in various national and international competitions with various inventive ideas and helps to build self-confidence.

Upon participating in ASTI Leap Challenge, the schools are to conduct the competition in their schools as an annual event which will involve more students. This way more students will benefit from the project. The schools should also continue to be able to participate in various national and international invention competitions.

After participating in ASTI Leap Challenge, the participants should also be able to:

- produce an original invention or solution and receive recognition for participating in the event;
- meet and network with other young people who share similar passion;
- develop creative and innovative thinking skills;
- develop teamwork dynamics to solve problems;
- use resources such as the internet, library and experts to hone their research skills;
- learn to document their invention project;
- enhance self-esteem and confidence; and
- acquire public presentation and writing skills.

### 3.4.3 ALC Summary

Secondary schools from Simpang Renggam Zone attended a 1 day training by invitation. Four teachers from each invited schools were requested to attend the training that was organised by ASTI. Jabatan Pendidikan Negeri Johor agreed to send invitation letters officially to the selected schools. The purpose of the training was to train 2 teachers as trainers and another 2 teachers as organisers. The teachers were guided to conduct 3 trainings and organise the ASTI Leap Challenge competition in their schools during the 1 Day training. A total of 7 schools attended the 1 day training held on 26th June 2019 at Pusat Kegiatan Guru (PKG) Bandar, Kluang (Johor).

Each school was given an ASTI Leap Challenge Manual folder during the training to guide the schools to organise their School Level ASTI Leap Challenge.

No.	School Name
1	SMK Seri Machap
2	SMK Dato' Ibrahim Majid
3	SMK Dato' Hj. Hassan Yunos
4	SMK Seri Lalang
5	SMK Dato' Abdul Rahman Andak
6	SMK Simpang Renggam
7	SMK Layang Layang

**Table 3 :** List of schools attended 1 Day ALC Training in Simpang Renggam Zone

Besides these new schools, some schools that participated in ALC 2018 showed interest in conducting ALC 2019. All the teachers were informed of the theme for school level competition which was **“Sustainable Development Goals 12: Responsible Consumption and Production”**.

Schools were required to submit a proposal in order to do school level ALC in their schools. A sample proposal was sent as a guide for the teachers and a template was also sent to help the teachers to do the proposal. The deadline for proposal submission for the schools that participated last year was 14th June 2019 (Friday). Meanwhile the deadline for the new schools from Simpang Renggam Zone was 28th July 2019 (Sunday). The process of school level ALC required the schools to organise 3 trainings and a competition in school. Teachers should cover the 3 modules namely Creative Thinking, Critical Thinking and Design and Innovative Thinking in the 3 trainings. The school level competition should be held based on the theme given by ASTI. As the next step, the schools were sent school level ASTI Leap Challenge report template.

The schools needed to send a report using the template sent to them once they had completed school level ASTI Leap Challenge. ASTI Leap Challenge certificates were sent to the schools that participated and completed ASTI Leap Challenge 2019. The certificates were mailed to the respective schools.

No	Name of school	State
1	SMK Ulu Tiram	Johor
2	SABK Madrasah Alattas Alarabiah Johor	Johor
3	SMK Taman Johor Jaya 1	Johor
4	SMK Bakong	Sarawak

**Table 4 :** Schools participated in ALC 2019 from last year

The above schools participated in ALC 2018 and continued to conduct ALC in their schools this year.

The new schools selected for ASTI Leap Challenge only attended the 1 Day ALC training conducted by ASTI. These schools did not organise School Level ASTI Leap Challenge in their schools. Five out of the seven schools had mentioned that the schools were not able to continue with ASTI Leap Challenge in their respective schools due to time constraint and too many activities held in their schools. Meanwhile ASTI did not get any response from the other 2 schools despite trying to contact the teachers from the respective schools twice.

In total, 4 schools completed ASTI Leap Challenge 2019 this year and 7 new schools attended the training organised by ASTI.

### 3.4.4 Conclusion

Upon completing ASTI Leap Challenge phase 1 and 2, ASTI continued with ASTI Leap Challenge 2019. Just like in 2018, ASTI Leap Challenge 2019 was held at school level. The schools are continuing to conduct ASTI Leap Challenge in their schools as an annual event which involves more students. The schools should be able to participate in various national and international invention competitions after doing ASTI Leap Challenge in their schools.

## 3.5 ASTI Entrepreneurs - Youthbiz Starz 2019

### 3.5.1 Introduction

Since its inception, ASTI, Association of Science, Technology and Innovation has been working towards inspiring the young generation of our nation to explore the world of science and innovation. ASTI has many projects such as National Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC) and ASTI Leap Challenge (ALC), during which students will design and come up with various new inventions and innovations addressing core problems they are passionate about. We have been privileged to witness many creative and unique inventions throughout the 14 years working with young people.

ASTI's main projects are related to building capacity among the young, hence most of our projects are designed as educational tools and techniques where our participants learn from the tasks they undertake during the development of their respective projects, for example, in SFYC, they learn to use the scientific method and scientific thinking. Through Young Inventors Challenge, YIC, our aim is not to develop inventions BUT to develop inventors, hence participants are provided training in problem identification, 'out-of-the-box' thinking, project management and so forth.

In all our projects, we try to instill self confidence amongst the learners as we see this as the precursor to any meaningful learning journey.

However, we have noticed another important skill could be further developed in these students. Many of these creative ideas do not move past the conception, designing and prototype phase. Students do not possess the necessary entrepreneurial skills to turn their unique idea into an implementable and marketable venture. They are not aware on how to proceed with business plans and proposals, since these are uncharted areas for them. With the necessary guidance, we feel we can develop potential entrepreneurs who could contribute to developing a better world for all.

### 3.5.2 Objective

The objectives of the YouthBiz Starz are:

- to create an awareness among students about business plans and entrepreneurship;
- to improve presentation skills and introduce the "pitching" of ideas process;
- to introduce some key commercial concepts such as financial planning, value proposition, cash flows, marketing and so on;
- to give the students a real feel of the business world; and
- to understand the "full business cycle".

We were approached by Kolej Tingkatan Enam Zainul Abidin, KTEZA to develop a special programme related to entrepreneurship for the Form 6 colleges in Pulau Pinang. Hence ASTI developed this special programme, YOUTH BIZ STARZ, with the name given by the KTEZA team.

The roles and responsibilities of the 2 main stakeholders were as follows:

1. **KTEZA Team** – in charge of the operations of the program which includes getting the necessary approvals, inviting the teams from the other Form 6 colleges and organising the on-the-day event.
2. **ASTI Team** – developing the content of the methodology, the materials of the programme, creating the training modules, conducting the training, developing the judging methodology, identifying the judges and managing the judging process.

### 3.5.3 1-Day Workshop

Youthbiz Starz Workshop was held on 10th July 2019 at DISTED College, Pulau Pinang. The workshop started at 8.30 a.m. with the arrival and registration of the participants. This was followed by breakfast. A total of 16 teams of 5 students in each team registered for the workshop. After the registration and breakfast, the workshop session started. The workshop was conducted by Dr. Mohamed Yunus Yasin and Mr. Mohamad Hakeem Satya. The students were grouped according to their school.

The teams were trained on how to develop their innovative ideas and designs into a business plan. Skills that were introduced included things like identification of needs, basic financial planning, building an investor's presentation, understanding "value propositions", developing marketing strategy, developing competitive strategic planning and so on.

After the briefing, the students worked in their groups and created a business canvas for a business idea they came up with. During this process Dr. Mohamed Yunus Yasin and Mr. Mohamad Hakim guided the students by visiting each group separately. The students were very excited doing the business canvas because it was a new experience for them.

The students were given 6 weeks after the workshop to create a business plan report which needs to include all the elements that are required in the report. The students also had to prepare a business pitch to present their business ideas and plans for the competition day.



### 3.5.4 Event Day

Youthbiz Starz Competition was held on 24th August 2019 at Kolej Tingkatan Enam Haji Zainul Abidin, Pulau Pinang. The competition started with the arrival and registration of the participants. This was followed by breakfast and compilations of the students' presentations. A total of 80 students from 16 teams took part in the competition. The teams were divided into 3 groups and were assigned different classrooms each to present their business pitch to the judges. The judges were also divided into 3 groups to judge the business pitch.

The business pitch started at 9.00 a.m. and ended around 11.00 a.m. The best two teams from each group were selected to pitch their invention again at the final to determine the top 3 places.

Before we started the final round, the students and the judges were given lunch break until 12.00 p.m. After lunch, the final competition began at Bilik Media, Kolej Tingkatan Enam Haji Zainal Abidin. All the groups prepared and improved their slides and presentation for the final business pitch. We invited a representative from each group to pick a number at random to determine their turn to present their business plan. Then the groups presented their business plan to the judges according to their turns. A judge was selected from each of the earlier group presentations, and together with the chief judge were the judges for this final round.

The lists of the winners are as below:

- Champion** : SMK Tinggi Bukit Mertajam
- 1st Runner up** : Kolej Tingkatan Enam Zainul Abidin (KTEZA)
- 2nd Runner up** : SMK Simpang Empat

### 3.5.5 Conclusion

The Youthbiz Starz was a huge success both in terms of the number of participations and outcomes. It was ASTI's pilot event and it is hoped that based on the lesson learnt, the project can be further improved for future participants. On this event we had received 16 business plan reports from various Form 6 colleges in Penang.

We believe that this programme shall serve as a platform for students to get to know about the business world and gain real knowledge via 'doing'. Also, there is an opportunity to gain more knowledge to commercialize product. We are working towards achieving our aim of helping the participants to learn to commercialize their product. We remind ourselves that this programme's main aim is to help build future entrepreneurs and not businesses.



## 3.6 Science Fair for Young Children Alumni Initiatives

ASTI launched the SFYC Alumni Initiative which aims to create a support network of past SFYC participants. The objectives of this initiative are:

- to build a framework of scientific-based thinking for students to understand the subject better;
- to increase students' ability to understand and absorb our school science subjects syllabus better ; and
- to further build students' self-confidence through the general development of their social skills that include effective communication and sharing ideas.

ASTI plans to set up the SFYC Alumni Initiative in each state at various past SFYC participating schools, in order that the students may return to their alma mater and contribute to a newer student population as they keep in touch with their teachers.

The first programme conducted under this banner was Science Fair for Young Children Champions League (SFYC-CL), made up of the winners of various international competitions.

### Science Fair for Young Children Champions League, SFYC-CL

#### 3.6.1 Introduction and Background

Science Fair for Young Children, SFYC, is a programme held annually among Tamil schools in Malaysia to encourage and strengthen the learning of science among school children. Science Fair has been a platform and an opportunity for young children to showcase their scientific knowledge and skills. For the past 11 years, SFYC was conducted at 3 levels: which are the school, zone and national levels. About 700 teachers have been trained and about 60,000 participants take part in these events every year. These teams have gone on to win international awards in England, London, Korea, Indonesia, Taiwan, China, Hong Kong, Canada, Russia and many other countries.

Thus, YB Dato' Dr. Xavier Jayakumar, Minister of Water, Land and Natural Resources and Association of Science Technology and Innovation, ASTI, organized an appreciation ceremony for the 2018 winners of these various international competitions through a special "**SFYC Champions League**" programme and followed by an appreciation lunch and prize giving ceremony. This SFYC Champions League is a pilot programme. All the teams that won were invited to the appreciation lunch and were also invited to participate in the SFYC-CL to develop their entrepreneurship skills. A total of 59 teams accepted to attend the appreciation lunch and 39 teams agreed to participate in SFYC-CL.

In SFYC Champions League, the students were provided with guidelines on how to commercialize their product. The main aim is to train young people to get a different perspective on their invention (i.e. the business or commercial perspective).

The products were evaluated by 24 real-life entrepreneurs, business people and innovators. The best 3 business plans were given a cash prize of RM 1000 each and certificates. All the other teams were given certificate of achievement and medals.

The aims and objectives of SFYC-CL are:

- to train young people to get a different perspective on their invention – the business or commercial perspective;
- to introduce and train young people on the basic steps in entrepreneurship;
- to introduce young people to business models and business plans; and
- to introduce and train young people to do a business pitch.

In order to achieve the aims and objectives, ASTI formed a project implementation group chaired by the President of ASTI. The members of the group included Ms. Vanitha Vasu, Ms. Caroline Maria and Ms. Umahsankariah Muthunaikar. The team then identified the venue. It was decided the event would be held at the Midlands Convention Centre. It was chosen for its central location and reasonable price.

The team also compiled the list of all the winners of various international competition from SJK(T)s in the year 2018.

The list was compiled with the help of the SFYC National and International Competition Coaching team, chaired by Dr. Subramaniam Gurusamy and Mr. Jayashri Selvandran J Thanapal.

Once the list was compiled, the ASTI secretariat drafted and sent out invitation letters to the respective schools. The letter invited them for the appreciation lunch to be hosted by YB Dato' Dr Xavier Jayakumar. The teams were also invited to participate in a special event called the SFYC Champions League whereby the teams were asked to think about commercialising the product which they used to win in the international competitions. After sending the letter, follow up calls were made to the respective schools.

In this competition, we aim to focus the attention on a business plan rather than the product. The training materials were developed by a team focusing on building an entrepreneur. The training materials were developed for the participants to learn :

- Business model- What is a business model?
- Marketing and Customer Segmentation- How to sell your product? How to get people interested in your product?
- Revenue, Cost and Profit- How to manage your money?
- Intellectual Property- Introduction to IP.
- Business Pitch- How to sell your ideas to investors?
- Business Plan- Introduction to business plan.

The module was created in PowerPoint slides for the teachers and students. The modules were sent to teachers via email. Training could not be done because of financial constraints.

The judging score sheet was developed with the help of Mr. Sri Themudu, who is a start-up specialist and Mr. Velavan Sengodan, the Chief Judge for the Young Inventors Challenge.

Each team was required to submit a 3 page business plan 1 week before the event. Many teachers and schools called and were given guidance accordingly and the enthusiasm could be seen in the teachers willingness to learn something new – the development of entrepreneurs and not just inventors.

### 3.6.2 Event Day Summary

#### Arrival, Registration and Breakfast

Science Fair for Young Children Champions League was held on 30th March 2019 at Midlands Convention Centre, Selangor. The event started at 8.00 a.m. with the arrival and registration of the participants. This was followed by breakfast. A total of 39 teams registered for the competition and another 20 teams registered for the Lunch and Appreciation Ceremony only. After the registration and breakfast session, participants were allowed to setup their invention models.

#### Model Setup, Opening Ceremony and Judging

Once the models were setup, the opening ceremony was held at 9.30 a.m. The event was officiated by Tan Sri Dr. Wan Mohd Zahid Mohd Noordin, Chairman of National Education Advisory Council. Next on the agenda was the briefing by the Judging Team at 10.00 a.m. Around 24 judges were present to judge the inventions and

they mostly comprised of university lecturers, business entrepreneurs and intellectual property specialist, etc.

#### Teacher's Dialogue Session

While the judging process was ongoing, a dialogue session was arranged with Tan Sri Dr. Wan Mohd Zahid Mohd Noordin, Chairman of National Education Advisory Council, Major General Dato' Yusri Anwar and Mr. Ramanathan Perianan who were also the members of National Education Advisory Council (NEAC). The dialogue session was an informative discussion and sharing of knowledge and information between the teachers and the NEAC. Beside the dialogue session, there were also sharing sessions on STEM Education Platform by LTT Global Communication.

#### VVIP, Guest and Public Viewing

The public was allowed to visit the booths and inventions during the judging time as it was only a half a day event. VVIP and Guests also visited the booths and talked to the participants to get to know their invention ideas and their plans on how they proposed to commercialise their product. Public viewing session was closed at 1.00 p.m. for lunch and the appreciation



### **Prize Giving Ceremony and Appreciation Lunch**

Our Guest of Honour YB Dato' Dr. Xavier Jayakumar, Minister of Water, Land and Natural Resources arrived at 12.30 p.m.

The VIPs and Guests who attended the event were:

#### **Tan Sri Dr. Wan Mohd Zahid Mohd Noordin**

*Chairman*

*National Education Advisory Council*

#### **Major General Dato' Yusri Anwar**

*Member*

*National Education Advisory Council*

#### **Mr. Ramanathan Perianan**

*Member*

*National Education Advisory Council*

#### **Dato' Seri A. Thaiveegan**

*Commissioner of Police (Rtd)*

*Ex CPO of Penang*

#### **Y.Bhg Datuk A. Sothinathan**

*Director*

*Uma Publication*

#### **Mr. Thiagaraja S. Rengasamy**

*CEO*

*K-Pintar Sdn Bhd*

#### **Dr. Kumaravalu Ramasamy**

*Pegawai Khas Kanan (YBTM)*

*Pejabat Timbalan Menteri Pendidikan*

#### **Mr. Nagarathnam Muthayan**

*Penolong Pengarah*

*Bahagian Pengurusan Sekolah Harian*

All the VVIPs and guests visited the booths and the participants presented their business ideas to them with great excitement.

Mr.Saktivel Ganeson and Mr.Preethiveraj Subramaniam were the Master of Ceremony for the Appreciation Lunch and Prize Giving Ceremony.

Before the Prize Giving Ceremony, few of the dignitaries gave their speeches. Dr.Mohamed Yunus Yasin first gave his Welcoming Remarks. He congratulated all the teams for their excellent participation in various international competitions. He added that this should not be the end of their journey and that the students should continue their inventing and innovating.

After the speech by Dr.Mohamed Yunus Yasin, a multimedia presentation on the SJK(T)s winning various international competitions was played for the viewing pleasure of all present.

After the multimedia presentation, the guest of honour, YB Dato' Dr. Xavier Jayakumar, Minister of Water, Land and Natural Resources was called upon on stage to deliver keynote speech followed by launching of a new project called Young Inventors Journal the Paper Writing Competition which is also funded by the Minister's office.

As the patron of the competition, the Minister demonstrated an experiment on Clean Water and Sanitation. Dr. Mohamed Yunus Yasin joined to give the explanation of the experiment. After that, Dr. Mohamed Yunus Yasin, presented a token of appreciation to YB Dato' Dr Xavier Jayakumar.

Dato' Dr Dionysius Shankar Kumar, Chief Judge of SFYC Champions League 2019 was called on stage to give the judges feedback and comments. He said that the judges had a tough time judging the participants due to their amazing inventions and business plans. He also gave his words of encouragement to continue their journey of discovery. After his remarks, he passed the results to the emcees.

Finally, Dr. Subramaniam Gurusamy gave the Thank You speech in which he encouraged the participants, regardless of the result, not to give up and to continue their inventive journey. Besides that, he also

thanked everyone involved in SFYC Champions League 2019 including the volunteers in making this event a great success.

All the participants were given certificate of achievements and medals for their participation in various international competitions followed by the announcement of the best three inventions business plan. The details of the winning teams are as below:

School Name: **SJK(T) Puchong**  
Invention Title: **Vege D'Jack Nuggets**

School Name: **SJK(T) Taman Tun Aminah**  
Invention Title: **Banana Fibre Roof**



School Name: **SJK(T) Ladang Wellesley**  
Invention Title: **Homemade Biodiesel Processor**



### 3.6.3 Conclusion

The SFYC Champions League and the appreciation ceremony was a huge success both in terms of number of participants and outcomes. It was ASTI's first attempt at such an event and it is hoped that based on the lesson learnt, the project can be further improved for future participants. For this event we received 41 business plan reports from the schools that have won in international competitions.

Our survey shows a high satisfactory level from all of our stakeholders. We believe that this programme shall serve as a platform to appreciate the winners of various international competitions. We are working towards achieving our aim of creating participants that has learnt the concept of commercializing their product.

### 3.7 Young Scientific Explorer

The Young Scientific Explorer (YSE) is a great project for kids to gain a deeper understanding of science and technology. It helps to nurture intellectual curiosity and helps children to acquire new ways of asking questions and understanding the world. YSE will encourage children to experience simple hands-on science experiments that engage multiple senses.

A mini “Science Fair” was organised on 23rd March 2019 at Setia Eco Templer Sales Gallery. We, Association of Science, Technology and Innovation, ASTI, was invited by Setia Eco Templer through Six Fingerz Events Company and we contributed on this day by setting up a science experiment booth for children. We showcased 10 experiments based on scientific concepts to the children and then walked them through the experiments. Our focus was not only to teach the scientific concepts to the children but also to give them an enjoyable experience. We wanted to show them that science is fun and to instil in them a passion for science and innovation.

We also had another station with interesting puzzle sets for the children to build. Each puzzle tested their creativity, critical thinking and perseverance. This station was not only to attract the children but to further highlight that learning can be fun and done through unconventional means as well. Each station was manned by dedicated ASTI staffs who interacted and explained to the children about each experiment.

We conducted the stations from 11.00 a.m. to 5.00 p.m. on the day and interacted with over 50 children. The feedback we received from the children was overwhelmingly positive with many of them expressing interest in the scientific concepts. They were in amazement of the results and asked a plethora of questions. We believed we achieved our goal set out for the day which was to peak their interest in science.

### 3.8 “On the Wings of Fire” Series

ASTI completed 2 sessions of Creative and Critical Thinking training for IPG lecturers. The first session was for lecturers from Peninsular Malaysia and the second session was for Sabah and Sarawak. Each session was for a total 4 days consisting of 2 days for Creative Thinking and 2 days for Critical Thinking. The main aim of the project was to help lecturers inculcate elements of creative and critical thinking in their teaching. It is hoped that these lecturers are able to use these skills to train future teachers to further improve their teachings in school to create students who can think and act independently.

Detailed modules were prepared by Dr. Mohamed Yunus Yasin to conduct 2 days training for creative thinking and 2 days training for critical thinking. The areas of training included a brief introduction, tools for teaching and examples of usage of the tools in classroom subjects.

The format used was the World Café Method where participants were encouraged to share and discuss what was introduced by the trainer in their respective groups. This format allows maximum learning via peer-to-peer knowledge sharing. The feedback we received was very positive and most lecturers said they would like to attend more training such as these.



## 3.9 A-PLUS (ASTI Progressively Learning and Understanding Science)

### 3.9.1 Introduction

Since its inception, ASTI, Association of Science, Technology and Innovation has been working towards inspiring the young generation of our nation to explore the world of science and innovation. We have many projects, including Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC) and ASTI Leap Challenge (ALC), during which students will design and come up with various new inventions and innovations. We have been privileged to witness many creative and unique inventions produced by students throughout these years.

All our projects are designed as an educational tools where our participants learn for themselves from the tasks they undertake. Hence, for example in Young Inventors Challenge, our aim is not to develop inventions BUT to develop inventors.

However, we have noticed another skill could be further developed in students. We have realised that many students cannot cope with the science syllabus in secondary school. This is because although some experiments have been inserted in some chapters to explain and describe the specific chapters, but due to time constraints, teachers skip these experiments, demonstrations and teach them theoretically.

We feel that to develop a student's understanding in science, particular scientific concepts and principles, the lessons have to be more hands-on, i.e. more experimental. Thus, in a classroom, experiments are more important than the theory. This is truer today where students can easily find these explanations on the internet (e.g. YouTube).

Thus we proposed starting the ASTI Progressively Learning and Understanding Science, A-PLUS programme for SFYC Alumni students.

Students were trained to conduct experiments and activities to help them understand the key scientific concepts and principles in their syllabus. The focus was less on theories since this is done in their schools. This programme aims to complement and enhance their learning experience in their classrooms.

We helped to introduce the key scientific concepts before they learn it in their schools. We helped them build a framework for their thinking before they got bombarded with information in their schools. This way, all the information they gained in their classroom were contextualized, thus helps them to understand the subject better. This method of learning is based on the latest research in Brain Science.

We also helped to enhance their analysing skills, their skills in handling apparatus and materials, data collection and also in communications.

A total of three workshops took place this year, which were held in March, May and September 2019. We charged the students a nominal fee of RM70 per student for each workshop to help cover the cost of materials and food.



### 3.9.2 Objective

The objectives of the workshops are:

- to build a framework of thinking for the students to understand science better;
- to increase the students' understanding level of their school's science syllabus; and
- to train students to conduct experiments, which includes data collection / extraction skill, analysing and drawing conclusions.



### 3.9.3 Workshop Summary

The **ASTI Progressively Learning and Understanding Science (A-PLUS)** Workshops were held at SJK(T) Taman Permata, Dengkil this year. The first workshop was held on 2nd March 2019, Saturday. The following workshops were held on 18th May 2019, Saturday and 7th September 2019, Saturday. The workshops started at 9.00 a.m. and ended at 5.00 p.m. The participants were Form One students.

#### Day 1: 2nd March 2019, Saturday

The day started at 8.30 a.m. with the arrival of the participants. Participants received ASTI's notebook upon the workshop fee payment was made followed by breakfast. There was a short briefing on the workshop's safety, rules & regulations as well as a briefing about the programme. The workshop started exactly at 9.15 a.m. The session started with **Chapter 1: Scientific Methodology**. Our trainer conducted experiments related to the topic. The session ended at 1.00 p.m. and lunch break was given to the participants.

After lunch, the session continued with **Chapter 2: Cell as the Basic Unit of Life** until 3.30 p.m. The following session was on **Chapter 3: Coordination and Response** which extended to 5.00 p.m.

#### Day 2: 18th May 2019, Saturday

The second workshop started at 8.30 a.m. with the arrival of participants and breakfast was served. The first session of the workshop was on **Chapter 4: Reproduction** which started at 9.00 a.m. after a quick briefing on the class rules. Later, the participants were given a task to conduct an experiment on their own and present what they understood. The afternoon session continued with **Chapter 5: Matter** which ended at 1.30 p.m.

At 1.30 p.m., the participants had their lunch break. The afternoon session continued with **Chapter 5: Matter** which ended at 3.30 p.m. The workshop concluded with **Chapter 6: Periodic Table**.

### Day 3: 7th September 2019, Saturday

The third workshop started at 9.00 a.m. with the first session on **Chapter 7: Air** followed by experiments based on the chapter. Students were given materials needed to conduct an experiment in groups. The session ended at 1.00 p.m. for lunch.

The following session after lunch was **Chapter 8: Light and Optics** and **Chapter 9: Earth**. The workshop ended at 5.00 p.m. with the Closing Ceremony during which a certificate of participation was presented to each participant.

### 3.9.4 Conclusion

A-PLUS workshops enable us to empower our young students to think on their own and develop higher order thinking capacities. It has become a way to equip them further and to ensure their excellence as they progress on to higher studies and the working world.



## 3.10 Young Inventors Journal, YIJ, Paper Writing Competition 2019

### 3.10.1 Introduction

YIJ is a free online research journal that is earmarked towards younger generation to increase their interest, get involved and immerse themselves in learning in science, technology and innovation. Accordingly, our journal hopes to help the young generation to explore new ideas and inventions in a systemic manner. YIJ is a project under ASTI. However, YIJ as most of projects under ASTI is managed independently by its own steering committee.

Under Young Inventors Journal, we organised a paper writing competition under the general theme of “How to Conserve and Save Water” for students aged between 13 and 18 years old. This is the first time ASTI organised a pilot programme of this kind.

We hope to tackle issues from a different angle – from the eyes of the young thinkers. Thus, through Young Inventors Journal, we invited young people to write in well researched papers. This paper writing competition was held in collaboration between ASTI and the Ministry of Water, Land and Natural Resources.

All papers that met the required standard received certificate of participation mailed to them. Students from three shortlisted teams (individual and group categories) presented their paper in front of esteemed judges on YIJ Paper Presentation Day.

### 3.10.2 Background

This competition was an individual or team based paper writing competition. The papers were written by the writers themselves or as a team made up of not more than 5 person. The paper had to be concise and yet have well researched informations on the problem which should be explained with a study, with the data collected from the relevant stakeholder(s) or experiments / tests in relation to the writer's solution or invention.

The solution can be a product or a methodology or a process or even a recommended government policy. This solution can be targeted for individuals, local communities, non-governmental organisations, the government and so on. The writer(s) should be clear of the target group with adequate segmentation.

### 3.10.3 Objectives

The objectives of the paper writing competition are:

- to create awareness to young people to understand the value of water;
- to help young people to identify real problems and provide real solutions;
- to identify ways to help overcome water scarcity on earth;
- to produce a paper proposing methods / inventions / policies that will help elevate the water problem and its conservation;
- to help build critical thinking by writing a well research paper; and
- to extend suggestions to the responsible / interested party to take action based on ideas / solutions proposed by the participants.

### 3.10.4 Modules for Participants

ASTI distributed the modules to the students via emails. The modules were developed for the paper writing competition 2019. The modules are :

- **Module 1** – *A General Guide to ASTI Paper Writing Competition*
- **Module 2** – *Overall Guide to Write an Academic Style Paper*
- **Module 3** – *A Guide to Write Policy Paper*
- **Module 4** – *A Guide to Write Review Paper*
- **Module 5** – *A Guide to Write Technical Research Paper*
- **Module 6** – *A Guide to Write an Invention Paper*
- **Module 7** – *Research Problem Statement*
- Guidelines to Paper Presentation

We hope that the modules helped the students in paper writing and would be helpful in the future for upcoming paper writing competitions.

### 3.10.5 Event Day Summary

#### Event Day

The **YIJ Paper Presentation Day 2019** was held on **17th August 2019**, Saturday as a one-day event. The event started at 9.00 a.m. and ended at around 3.00 p.m. Even though it was a pilot project, the event was a great success. The details of the events are as follows:

**Date** : 17th August 2019

**Venue** : **White Box Publika, Level G2-01, Block A5, No. 1, Jalan Dutamas 1, Solaris Dutamas, 50480 Kuala Lumpur.**

#### Arrival, Registration and Breakfast

The event started at 9.00 a.m. with the arrival and registration of the participants. The event was followed by breakfast. Before the Opening Ceremony began, participants for individual category and a representative from the participating teams were called to the registration counter to pick a ball to determine their turn for their presentation.

#### Opening Ceremony

The Opening Ceremony began at 9.00 a.m. Mr. Pratheep Sandrasaigaran, the Managing Editor for Young Inventors Journal who gave the Opening and Welcoming Speech. After the opening speech, the Chief Judge for the event, Dr. Kannan Narayanan was invited to brief the participants on the judging process.



## Presentation, Judging and Arrival of Guest of Honour

The participants were given 15 minutes to present their paper followed by 10 minutes of question and answer session. For Group category, minimum 2 representatives were required to present their paper while the remaining team members could answer questions on their behalf. During the final round, participants were encouraged to use visual aids for their presentation. The presentation began with the Individual Category presentation at 9.45 a.m. The first participant did the presentation followed by the 2nd participant and the 3rd participant.

Next, the Guest of Honour, YB Dato' Dr. Xavier Jayakumar, Minister of Water, Land and Natural Resources was called on stage to deliver his speech. After his speech, the participants and their mentors were called on stage to receive their certificates. The students were given certificates of participation and the teachers were given certificates for Mentors. Next, the Guest of Honour handed token of appreciation to the judges of the event. Before YB Dato' Dr. Xavier Jayakumar left, Dr. Mohamed Yunus Yasin, President of ASTI presented YB Dato' Dr. Xavier Jayakumar a hamper as a token of appreciation. YB Dato' Dr. Xavier Jayakumar had to leave the event to attend another event.

After a 5 minutes break, the competition resumed with the Group Category presentations. The judges asked the participants questions after every presentation. Lunch break was from 1.00 p.m. until 2.00 p.m. and by this time all participants had completed their presentations.



## Closing and Prize Giving Ceremony

The Closing and Prize Giving Ceremony started at around 2.00 p.m. after lunch break. After everyone was seated, the Chief Judge, Dr. Kannan Narayanan, was invited to give the judging feedback. After the judging feedback, Dr. Mohamed Yunus Yasin was invited to give his Thanking Speech. He thanked everyone who had provided their support and for their involvement in YIJ Paper Writing Competition. He also encouraged the participants to participate in the next series of paper writing competition that ASTI is going to organise.

## Announcement of the Winners

Details of the winners of YIJ Paper Writing Competition 2019 are as below:

### Individual Category

#### Champion

Name: **Hasmita Kannan**

School Name: **Taylor's International School Puchong**

Paper Title: **Water Conservation for Sustainable Life**

(Received Cash Prize of RM1,000.00 and Certificate)

#### 1st Runner Up

Name: **Simran Kaur A/P Jagjit Singh**

School Name: **SMK USJ 13**

Paper Title: **Water Conservation-A way of Life**

(Received Cash Prize of RM700.00 and Certificate)

#### 2nd Runner Up

Name: **Pravin Periasamy**

School Name: **REAL Schools Shah Alam Campus**

Paper Title: **How to Conserve and Save Water**

(Received Cash Prize of RM500.00 and Certificate)

## Group Category

### Champion

Team Name: **DJLY** (Danial Lau & Jeriel Yong Jia Ler)

School Name: **SMK All Saints, Kota Kinabalu**

Paper Title: **Applications of Permeable Pavements**

(Received Cash Prize of RM3,000.00 and Certificate)

### 1st Runner Up

Team Name: **Rising Stars** (Yong Saan Cern & Lim Yi Hang)

School Name: **SMJK Katholik and Wesley Methodist School**

Paper Title: **IoT Water Distribution Monitoring**  
(Received Cash Prize of RM2,000.00 and Certificate)

### 2nd Runner Up

Team Name: **The Feisty Females** (Krithikha A/P Letchumi Ganthan, Lohsshini A/P Rajah, Tharishna Balmic, Aysshani Lalchand Thadani, Nurhazlin Farhana binti Mohd Firdaus)

School Name: **SMK Tarcisian Convent Ipoh**

Paper Title: **Grey Water Recycling System**  
(Received Cash Prize of RM1,000.00 and Certificate)



Certificate of participation was given to all participants who submitted their paper. The certificates were mailed to the participating schools. Schools with 2 or more paper submissions were awarded with a certificate based on the average mark received from their submissions. The certificate was mailed to the schools too. Below are the details of the certificates awarded to the schools:

### Silver Award Certificate:

1. **Kolej Permata Insan (Negeri Sembilan)**
2. **Sekolah Seri Cahaya (Selangor)**

### Bronze Award Certificate:

1. **SMK USJ 13 (Selangor)**
2. **SMK Merbau (Sarawak)**
3. **SMK Dato Jaafar (Johor)**

Certificate for schools was given based on the following criteria:

1. **Platinum School Certificate** – must obtain an average mark of above 90%.
2. **Gold School Certificate** – must obtain an average mark of between 80% - 90%.
3. **Silver School Certificate** – must obtain an average mark of between 70% - 80%.
4. **Bronze School Certificate** – must obtain an average mark of between 60% - 70%

There were no schools that qualified for the Platinum and Gold awards.

## 3.10.6 Conclusion

YIJ Paper Writing Competition 2019 was a success. We received a total of 44 papers from 83 registration. This is a good number for a pilot programme. This competition was the first of its kind organised by ASTI. The response received for the pilot project was overwhelming and we will be organising the second series of the paper writing competition in the near future. YIJ Paper Writing Competition gave an opportunity to the youngsters to contribute to the community by suggesting solutions to the water issue faced in the society. More importantly, the competition helps young people to think critically and systematically. It also helps young people build the discipline of academic writing within themselves.

## 3.11 ASTI Media Engagement Programmes

### 3.11.1 Ariviyal Ulagam

ASTI continued writing articles for Mayil, a monthly magazine, until October 2019. The articles were aimed at raising awareness of science, technology and innovation among the general public. ASTI has been writing articles for Mayil magazine since 2016.

### 3.11.2 Arivan Anggam

ASTI wrote articles for Chutti Mayil in 2019 which is a monthly magazine for students. The articles written for Chutti Mayil were science related articles.

### 3.11.3 Ariviyalum Arivartha Samuthayamum

ASTI in collaboration with Tamil Malar newspaper published a total of 12 articles from February 2019 to August 2019 in the paper in relation to "**Future of Jobs and How to be Relevant in the Future**".

### 3.11.4 Promotion for Science Fair for Young Children

The Public Relations (PR) Department managed the flow of information between the organisers of Science Fair for Young Children 2019 and general public. Information about Science Fair for Young Children was promoted to the public via press releases and interviews over national television and Facebook Live Video. The Public Relations activities that were carried out to promote Science Fair for Young Children 2019 are as below:

#### 1) Press Conference

Science Fair for Young Children 2019 Press Conference was attended by YB Senator Tuan Waytha Moorthy a/l Ponnusamy, Minister in The Prime Minister's Department (National Unity and Social Wellbeing) as our Guest of Honour. The purpose for the press conference was to let Tamil schools and also the general public to

know about Science Fair for Young Children has been launched for the year 2019. The details of the press conference are as below:

**Date** : 26th January 2019 (Saturday)

**Venue** : Bilik Mesyuarat 1, Pusat Asasi Sains, Universiti Malaya

**Time** : 12.00 p.m. to 1.00 p.m.



#### 2) Facebook Live Training

- For the first time, SFYC 2019 Working Group Committee decided to do a Facebook Live Training for the shortlisted Grand Finale participants.
- The Facebook Live Training was conducted on the 9th June 2019, Saturday, from 2.00 p.m. to 3.30 p.m.
- Dr. Subramaniam Gurusamy was online with the participants and shared guidelines and tips on the final preparation for the participating teams for the Grand Finale.
- The Facebook Live Training reached up to 4837 people and the response was overwhelming.

### **3) National Science Fair for Young Children, NSFYC, 2019**

- The invitations for NSFYC 2019 were sent to VVIPs, VIPs, Guests, funders and well-wishers by the Public Relations team.
- Dissemination of information on NSFYC 2019 was done via SFYC's & ASTI's website, newsletter and social media as well.
- Dissemination of information was done via SFYC's & ASTI's Facebook too.
- In order to promote NSFYC 2019 to the general public, school teachers and parents, an interview was held a week before the event in Astro Vizhuthugal to invite them for public viewing. The purpose of the interview was also aimed to encourage young minds out there to come and visit the projects shown by the participating teams in order to get an idea and motivate themselves to get involved in the fair in coming years.
- NSFYC 2019 was covered by Malaysia Nanban and Mayil Magazine and also was published in Anegun online news. In addition, the event was also broadcasted in RTM 2 Tamil News, Bernama News and Vanakkam Malaysia. The broadcasts included Dr. Mohamed Yunus bin Mohamed Yasin's and Mr. Subaash Krishnan's interviews taken during the event.

### **3.11.5 Promotion for Young Inventors Challenge, (YIC), 2019**

News on Young Inventors Challenge, YIC, 2019 was put up on Indonesian Education and Cultural Ministry website, Manila Bulletin Online (Philippines English Newspaper) and Kota Kinabalu District Education Office website.

### **3.11.6 Promotion for Young Inventors Journal(YIJ), Paper Writing Competition 2019**

- An interview was given by Dr. Mohamed Yunus Yasin, the President of ASTI and Chief Editor of YIJ and Mr. Pratheep Sandrasaigaran, the Managing Editor for Young Inventors Journal on TraxxFM on 27th March 2019. The purpose of the interview is to introduce and announce to the public about YIJ Paper Writing Competition 2019.
- The YIJ Paper Presentation Day 2019 received coverages in newspapers / media such as The Star Online and The Star on 25th August 2019.
- In addition, the event was also broadcasted in RTM's Berita Nasional.

### **3.11.7 Promotion for ASTI Leap Challenge(ALC)**

Dr. Mohamed Yunus Yasin, as the Project Director of ASTI Leap Challenge, ALC, was interviewed by TraxxFm on 15th May 2019. Dr. Mohamed Yunus Yasin explained about ASTI Leap Challenge, ALC, in the interview.

### 3.11.8 Press Conference to announce winning teams at IEYI 2019

The Association of Science, Technology and Innovation (ASTI) being the Malaysian Delegate for International Exhibition for Young Inventors, sent 12 teams from Malaysia to take part in IEYI 2019 which was held in Jakarta, Indonesia from 22nd to 26th October 2019.

All the 12 teams which participated in the exhibition won special awards from various countries. A press conference was held to announce the winning teams. The details of the press conference are as stated below:

**Date** : 15 November 2019, Friday  
**Time** : 11.00 am-12.00 pm  
**Venue** : Dynasty Hotel Kuala Lumpur, 218, Jalan Sultan Azlan Shah, 51200 Kuala Lumpur.



## 3.12 ASTI Collaborative Projects

### 3.12.1 Malaysian Delegate for International Exhibition for Young Inventors

The Association of Science Technology and Innovation (ASTI) being the Malaysian Delegate for International Exhibition for Young Inventors (IEYI), sent 12 teams from Malaysia to take part in IEYI 2019 which was held in Jakarta, Indonesia from 22nd to 26th October 2019.

### 3.12.2 MoU Signing with Vusisizwe Independent School (South Africa)

ASTI signed a MoU with Vusisizwe Independent School from South Africa to collaborate and leverage on each other's networks and assets to market our services and to jointly develop programmes and educational products that will enhance the educational environment. The collaboration are particularly in 3 projects that ASTI conducts, which are Science Fair for Young Children (SFYC), ASTI Leap Challenge (ALC) and Young Inventors Challenge (YIC). The MoU was signed at the South African High Commision office in Kuala Lumpur.



### 3.12.3 Science Film Festival

The Science Film Festival is a celebration of science communication and enjoys a unique position in Southeast Asia, North Africa and the Middle East. In cooperation with local partners it promotes science literacy and facilitates awareness of contemporary scientific, technological and environmental issues through film and television content coupled together with accompanying educational activities. The festival selection demonstrates that science can be communicated in an educational, as well as in an entertaining manner through audio-visual media.

In 2019, the event took place internationally in over 28 countries and received 200 films from Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Cuba, Egypt, France, Germany, Hungary, India, Indonesia, Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, Philippines, Romania, Spain, Switzerland, Thailand, UK and the USA. The Science Film Festival 2019 came up with the theme of "Humboldt and the Web Of Life".

As early as 1800, Humboldt talked about harmful human-induced climate change. He was the most celebrated scientist of his age and he was also a visionary thinker and a pioneer of environmentalism. He saw Earth as a living organism where everything was connected, from the tiniest insect to the tallest trees.

The festival partners in Malaysia were the Ministry of Education Malaysia, the Cooler Lumpur Festival, Malaysian Nature Society, German-Malaysian Institut-GMI, Association of Science, Technology and Innovation-ASTI and Ecocentric Transitions.

The Opening Ceremony was held on 3rd October 2019 at the White Box & Black Box, Publika, Kuala Lumpur, from 9.00 a.m. to 2.00 p.m. The president of Goethe-Institut Malaysia, Mr. Rolf Stehle, started of the opening ceremony with his speech. There were 132 students from five different schools who participated in the event. The students were from:-

- GAPP students from GMI,
- Home Schooling Group Life Explorers,
- SM Sri Cahaya,
- Oxburg Academy,
- Sri Damesh International School.

The films played during the ceremony were

- Deutsche Welle episode on Humboldt,
- Plan B: The Big Buzz,
- Ground Story: Marine Litter,
- Nine-and-a-half: Your Reporters: Sharing instead of Buying.

Later, the students participated in activities organised by the Ecocentric Transition team. They had Carbon Cycle Game (the participants experienced how carbon atoms can be in different forms), Entomology & Edible protein (participants observed the taxonomy of insects and learnt about the exploration of edible insect protein), Humboldt Quiz and Activity Station. The ceremony concluded with lunch.

### 3.12.4 Klang Valley City Nature Challenge (KV CNC 2019)

The Rimba Project is organized annually by University Malaya since late 2013. This year, ASTI collaborated with Rimba Project for the second year. This initiative was strengthened with a MoU signed last year between the two parties on the 16th of April 2018 at Rimba Ilmu Botanical Garden, University of Malaya for a project named City Nature Challenge (CNC). CNC is an international initiative for people to find and document plants and wildlife in cities across the globe. City Nature Challenge (CNC) is a mobile app-based competition where cities around the world compete to see who can make the most observation of nature, who can find the most species, and who can engage the most people. The Mobile-App is called iNaturalist and developed in the US. CNC is a global challenge with 68 cities participating across the globe.

For this year's City Nature Challenge, a total of 35,126 people took part across 159 cities, making it a total of 963,773 observations and 31,892 species that mobilized residents and visitors to go out and find and document their local nature. Out of the 31,892 species recorded, more than a thousand species were rare or endangered species.

Klang Valley appeared as the top ten in the world (6th place: with 37,916 observations) and top in Asia for observation. Another achievement of Klang Valley team (organized by University Malaya) was that it added the largest number of new species to the region on iNaturalist through the City Nature Challenge with 1707 new species.

Nine (9) schools participated in the workshop held in Rimba Ilmu Botanic Garden, University of Malaya, 50603 Kuala Lumpur, Federal Territory of Kuala Lumpur on 17th and 25th April 2019. In this workshop, the Project Manager of the Rimba Project, Mr. Tan Kai Ren, gave a full briefing of the competition with a demo on how to participate in this competition. The same schools took part in this competition which was held from 26th until 29th April 2019 with certain bounds of terms and conditions. Closing and prize giving ceremony of KV CNC 2019 was held at the same venue as for workshop on 26th June 2019.



### 3.12.5 ASTI Edu Tour (AET) Malaysia

In an effort to cultivate knowledge exchange among Tamil Nadu's younger generation as well as exposing the students to Malaysian culture, ASTI organized and completed "Know Malaysia Education Exchange Programme" for students from Tamil Nadu to have a Culture and Language Knowledge exchange between both places. As such, a group of youths from India accompanied by their teachers and a representative from Tamil Nadu's Ministry of Education arrived in Kuala Lumpur, Malaysia to participate in this exchange programme from 5th to 14th May 2019. This programme was conducted with the request from the government of Tamil Nadu.

One of the objectives of the programme is to provide an exposure of Malaysian cultural and education system and learning to the younger generation of Tamil Nadu who will be future leaders.

The target group for the pilot programme was students from Tamil Nadu who were selected by the government of Tamil Nadu based on their talent and capabilities. Their age ranged from 16 to 18 years old. There was a total of 7 male and 18 female students accompanied by 2 teachers that took part in the tour.

The participants of the programme visited the National Monument, Merdeka Square, Istana Negara, SJK(T) Taman Sentosa Selangor, Batu Caves, Parliament House, Kuala Lumpur Twin Towers, Bujang Valley Archaeological Museum & Heritage Culture Centre in Kedah, AIMST University in Kedah, Penang Hill, Kek Lok Si Temple in Penang, the Penang Bridge, A Famosa Fort in Melaka, Dutch Square in Melaka, Jonker Street in Melaka, Dutch Town in Melaka and the Sultan's Palace in Johor.

They also visited the Indian Heritage Site in Singapore, Merlion, Sentosa Island and Garden by the Bay in Singapore. The students also had an opportunity for a short meet up with Malaysian Education Minister, YB Dr. Maszlee bin Malik before concluding the 9 days tour programme and departed for Chennai.

Besides that ASTI also organised an essay writing competition for the participants who participated in the programme. Some participants submitted their essay about 2 months after the event and prizes were given accordingly.



### 3.12.6 DISTED 2nd Annual Mathematical and Science Olympiad

DISTED 2nd Annual Mathematical and Science Olympiad was held on 13th April 2019 and 27th April 2019 respectively in DISTED YCE Heritage Campus. This programme was endorsed by ASTI.



### 3.12.7 STEM Education

ASTI launched STEM Education Digital Learning Portal, a collaboration via MoU between LTT Global Communications Sdn. Bhd. and Association of Science Technology & Innovation, ASTI, to help provide students with quality STEM education resources. All students who purchased via this portal only paid RM60 which is a 75% discount of the normal price of RM240 to get the resources.

### 3.12.8 Memoranda of Understanding (MoU) Signing

ASTI signed Memoranda of Understanding (MoU) with Malaysian Institute of Economic Research (MIER) under the MIER Crouching Tiger Project to jointly work on IR4.0 in Education. The MoU was signed at a press conference organised by MIER at Malaysian Institute of Economic Research Office, Kuala Lumpur on 1st October 2019. We plan to jointly study the effect of I.R. 4.0 in Education.



### 3.12.9 Collaboration with Politeknik Ungku Omar

Dr. Mohamed Yunus Yasin, the President of ASTI and an advisor of Politeknik Ungku Omar met with representatives from Politeknik Ungku Omar for potential collaborations for 2019 at ASTI office.



### 3.13 ASTI Appreciation Lunch

ASTI organised an Appreciation Lunch for the volunteers of Science Fair for Young Children 2019 and Young Inventors Challenge 2019 for their contribution in making the events successful. The Appreciation Lunch was held at Malabar Palace, Bukit Bintang, Kuala Lumpur on 28th September 2019.



### 3.14 ASTI Leadership Programme / Internship

#### 3.14.1 Alumni

Over the years, the number of schools and students that have participated in Science Fair for Young Children, SFYC, Young Inventors Challenge, YIC, and Creative and Critical Thinking, (CCT) Camp and ASTI Leap Challenge has increased. We have not been able to keep in touch with the students who had participated in these events as much as we want to. With this objective in mind, we decided to start an Alumni for all those who took part in our events in the past.

The participants of these events have been invited to be a Member of the alumni. By becoming a member of our alumni, we will keep the members updated with all the latest developments of our events as well as interesting news and developments in science, technology and innovation.

### 3.14.2 Volunteering with ASTI

We are a group of science enthusiast volunteers, who are trying, through our association, to bring the excitement of science, technology and innovation to a wider public. In doing so, we require a number of like-minded volunteers to help us with our task. It can be on an ad-hoc or more permanent basis.

The association has a range of volunteering opportunities available which are explained below:

#### **Professionals**

- Speaker – Public Lectures at different venues
- Companies - who are able to lend their support via their respective capabilities
- Training - to teach new knowledge and innovative methods
- Demonstrations – During road shows and training
- Writing – website articles, newspaper columns, proposals, etc.
- Fund raising / Finance - to help keep our projects running
- Mentoring - to help some of our participants reach greater heights
- Judging - to be judges in some of our programmes
- General Volunteer - to help with various tasks and initiatives.

For young students at various levels, we provide training and opportunities to volunteer in:

#### **University Students**

- organizing events
- producing and realizing innovative ideas
- ability to do demonstrations
- the discipline needed for administration
- event participation / support
- IT / Website / Social Media expertise
- mentoring ability
- the adaptability of a General Volunteer

#### **School Students**

- IT / website / social media expertise
- organizing events
- innovative ideas suggestions
- organizing science week
- starting a science club
- event participation /support

### 3.14.3 Internship with ASTI

Interns reap tremendous benefits during their time with ASTI. Skills cultivated during their training such as leadership, organizational management, interpersonal communication, self-confidence, team work and work ethics rank as equally important as academic credentials. These skills will go a long way to help in their personal and career aims, simultaneously being a great service to their respective universities or organizations that they are placed.

In 2019, ASTI had **3 Interns**, from **Universiti Sains Malaysia (Penang)**, **University of Malaya (Kuala Lumpur)** and **University Selangor (Selangor)** respectively.

#### **Objectives of the Internship**

- enhance students' educational experience through practical hands-on experience and involvement in projects associated with science, technology and innovation;
- provide students with supervised practical experience;
- expose students to the working environment of an NGO focused on science, technology and innovation; and
- a better understanding of ASTI's aims and objectives.

#### **Functions / Duties and Output Expectations**

Under the direct supervision of relevant ASTI staffs or a Committee Member, the intern is expected to perform the following tasks:

- complete a written paper on suggestions to improve the day-to-day work of ASTI;
- provide support to ASTI committee during seminars, workshops, conferences and any other ASTI related events where applicable; and
- provide daily updates through social media on their experience in interning at ASTI and on a specific programme they are assigned to.

At the end of the internship, the following output is expected:

- a final report detailing the intern's experience and work assigned in different ASTI focus areas
- a report detailing the outcome of the various seminars, workshops or conferences organized or attended

## 3.15 Websites and Facebook

ASTI continuously updates its websites and Facebook to give real-time information to the public about all of its ongoing events and projects. ASTI's websites and Facebook have been promoted heavily since they are used as a mean to disseminate information and stay connected with ASTI's various stakeholders.



## 3.16 Newsletter

In order to update its members, stakeholders and friends with recent activities and projects' progress, ASTI continues its effort to produce monthly newsletter. ASTI newsletter is designed to be read in less than 5 minutes, taking into consideration the busy schedule people lead these days. As of 31st December 2019, ASTI had published 12 newsletters. All the newsletters were emailed to ASTI's contact list, sent by WhatsApp to its contact and uploaded to ASTI's website and Facebook.



# 4 ASTI RESEARCH DEVELOPMENT

ASTI Research and Development Department together with 450 Movement is headed by Dr. Mohamed Yunus Yasin. The Research and Development Department has successfully developed and updated the following documents / modules:

## 1. YIC 2019

- YIC 2019 Students' Manual
- YIC 2019 Training Presentations (Online)
- YIC 2019 Training Videos (Online)

## 2. ALC

- ALC Manual (with training slides)

## 3. YIJ 2019 Modules

- A General Guide to ASTI Paper Writing Competition
- Overall Guide to Write an Academic Style Paper
- A Guide to Write Policy Paper
- A Guide to Write Review Paper
- A Guide to Write Technical Research Paper
- A Guide to Write an Invention Paper
- Research Problem Statement
- Guideline to Paper Presentation

## 4. Reports of ASTI's projects

- Science Fair for Young Children 2019 Report
- Young Inventors Challenge 2019 Report
- Creative and Critical Thinking Camp / Workshop 2019 Report
- ASTI Annual Report 2019
- ASTI Leap Challenge 2019 Report
- Science Fair for Young Children Champions League 2019 Report
- Youthbiz Starz 2019 Report
- Young Inventors Journal Paper Writing Competition 2019 Report

## 5. Publicity Materials

- Monthly Newsletter
- Event Promotional Video

## 6. **A-Plus Module**

### Form 1

- **Chapter 1:** Introduction to scientific Investigation
- **Chapter 2:** Cell as the Basic Unit Of Life
- **Chapter 3:** Coordination and Response
- **Chapter 4:** Reproduction
- **Chapter 5:** Matter
- **Chapter 6:** Periodic Table
- **Chapter 7:** Air
- **Chapter 8:** Lights and Optics
- **Chapter 9:** Earth

## 7. **CCT Camp 2019**

- Module on Ice-Breaking
- Module on 5 Reasons Why Humans Are Capable of Becoming Genius
- Module on Healthy Body and Healthy Mind
- Module on Boosting Your 5 Senses
- Module on Problem-Solving (CSI)
- Module on The Movie and Review
- Module on Mind Mapping & Brainstorming
- Module on Relaxation & Concentration
- Module on Understanding Stories
- Module on Boosting Your 10 Intelligences
- Module on Lateral Thinking - Primary
- Module on Creativity & Expressing Your Creativity
- Module on Short-Term Memory Tips
- Module on Discover Yourself
- Module on Critical Thinking in Conversation
- Module on Living Earth
- Module on Understanding
- Module on Tinkering
- Module on Multitasking
- Module on Problem Solving
- Module on Brain Exercises
- Module on Thinking Skills
- Module on Logical Thinking
- Module on Lateral Thinking – Secondary



# 5 ACCOMPLISHMENT

In 2019, ASTI successfully organized three major projects which were

- **Science Fair for Young Children;**
  - **Young Inventors Challenge; and**
  - **Creative & Critical Thinking Camp and Workshops**
- and three pilot projects
- **Science Fair for Young Children Champions League;**
  - **Youthbiz Starz; and**
  - **Young Inventors Journal Paper Writing Competition.**

Besides that, ASTI was engaged with the public through its Media Engagement Programme. ASTI had also been collaborating with various non-governmental organizations in order to successfully run our projects.

The overall participations of schools in Science Fair for Young Children and Young Inventors Challenge have shown continuous growth and more students are benefitting from these events. The winners of Science Fair for Young Children and Young Inventors Challenge had then participated in various national and international competitions and won prizes.

## 5.1 Accomplishments of Science Fair for Young Children

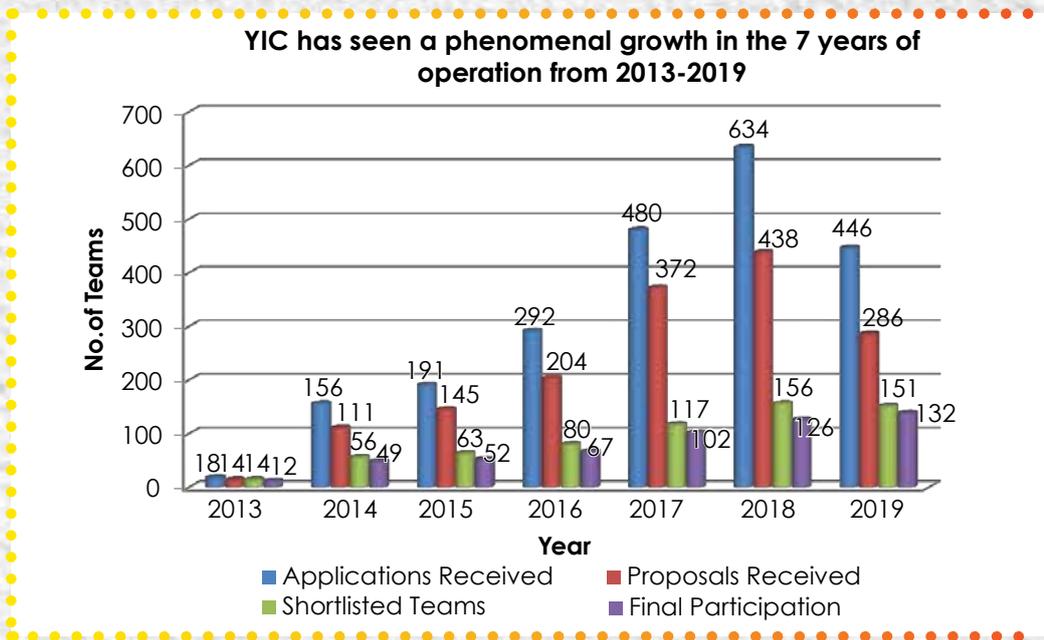
SFYC, is our largest yearly project. We encourage and strengthen the learning of science among Tamil school children, providing them with the platform and opportunity to showcase their scientific knowledge and skills. The event has been conducted at three (3) levels: school, zone and national levels. About 700 teachers have been trained to guide and manage up to 60,000 participants yearly. Some of these schools have gone on to win international awards in Beijing, Hong Kong, New York, Seoul, Jakarta, London and in many more venues. We are proud to say that today, Tamil schools are the best performing schools in the subject of Science in Malaysia.

We are proud to announce that all the 12 teams that participated in the International Exhibition for Young Inventors (IEYI) 2019 won special award from various countries. The details are as below:

No	School Name	Invention Title	Award
1	SJKT Convent Taiping	Flood Alarm & Smart Drainage System	<ul style="list-style-type: none"> <li>Silver Award</li> <li>Special award from Indonesia</li> </ul>
2	SJKT Tun Aminah	Banana Roof Fibre	<ul style="list-style-type: none"> <li>Silver Award</li> <li>special award from Macao</li> </ul>
3	SJKT Tun Aminah	Biodiesel Processor	Special award from China
4	SJKT Kangar Pulai	Biscuits from diff source of food waste	<ul style="list-style-type: none"> <li>Silver Award</li> <li>Special award from Thailand</li> </ul>
5	SJKT Jalan Sungai	Terracotta Air Cooler	Special award from Macao
6	SJKT Serdang	Green Energy Brick	<ul style="list-style-type: none"> <li>Bronze Award</li> <li>Special award from Indonesia</li> </ul>
7	SJKT Kinrara	Organic Hardwater filter & utilisation of byproducts for agriculture	<ul style="list-style-type: none"> <li>Bronze Award</li> <li>Special award from Japan</li> </ul>
8	SJKT Kinrara	Healthy Bar	<ul style="list-style-type: none"> <li>Silver Award</li> <li>Special award from Vietnam</li> </ul>
9	SJKT Kinrara	Home auto compost	<ul style="list-style-type: none"> <li>Gold Award</li> <li>Special award from Macao</li> <li>Special award from Indonesia</li> </ul>
10	SMK Datuk Onn	Hi Teaf	<ul style="list-style-type: none"> <li>Bronze Award</li> <li>Special award from Thailand</li> </ul>
11	SMK Datuk Onn	Filt- Pure	Special award from Taiwan
12	SMK Datuk Onn	Multi-functional solar powered generator	Special award from Taiwan

**Table 5 :** Science Fair for Young Children Achievement 2019

## 5.2 Accomplishments for Young Inventors Challenge (YIC)



**Figure 1:** Comparison of Participation from YIC 2013-2019

The above graph shows the growth of YIC since 2013. As can be seen in the above graph, there is an increase in the number of applications received between 2013 and 2018 and a slight decrease in 2019. The decrease in the number of participants is mainly due to the participation fee of RM 400 per team that we charged for the first time this year because of financial constraints. Nonetheless, we still managed to get participation from 446 teams showing that schools and students are very interested in participating in the Young Inventors Challenge.

Table below shows the breakdown of YIC grand finale participation by country.

State	YIC 2013	YIC 2014	YIC 2015	YIC 2016	YIC 2017	YIC 2018	YIC 2019
Malaysia	12	49	51	58	81	79	67
Singapore	0	0	1	0	1	1	2
Philippines	0	0	0	9	4	14	25
Thailand	0	0	0	0	14	24	14
Indonesia	0	0	0	0	2	7	3
China	0	0	0	0	0	1	3
Brunei	0	0	0	0	0	0	1
Vietnam	0	0	0	0	0	0	16
Timor Leste	0	0	0	0	0	0	1

**Table 6 :** YIC Grand Finale Participation 2013 -2019

## Countries Distribution for YIC 2019

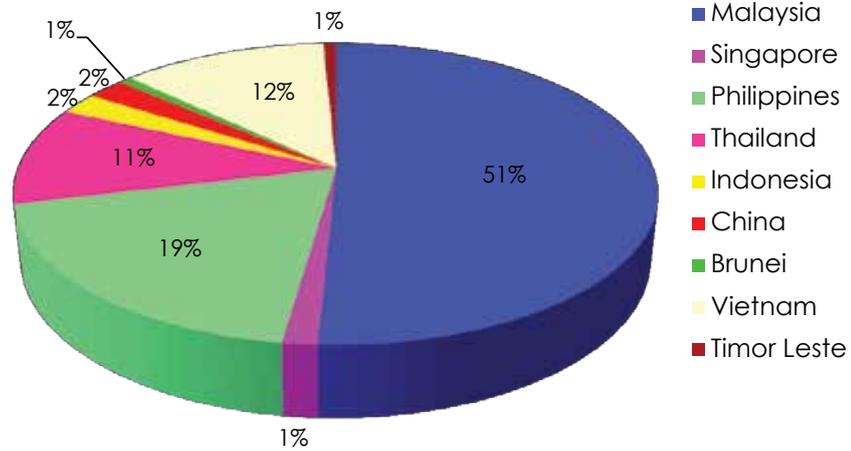


Figure 2: Countries Distribution for YIC 2019

As the year progresses, we have managed to reach out to more countries, and this year we have the participation of new countries, including Brunei, Vietnam and Timor Leste. Their participation and invention ideas are overwhelming and outstanding. In the coming years, we hope to open up YIC to even more countries.

## 5.3 Recognitions

### **ASTI Industry Advisor to Politeknik Ungku Omar**

ASTI has been officially appointed to the Industry Advisory Board for Politeknik Ungku Omar.



### **Appointment as Sub-Committee Member of 'NICCIPS' Initiative Project**

Lt. Col. Dr. Vikneswaran Munikanan (R), ASTI Treasurer was appointed as Sub-Committee member of National and International Conference and Competition Initiative for Primary Schools (NICCIPS) project for the term 2019 – 2020 effective 7th November 2019.

'NICCIPS' is a joint initiative by the Tamil Foundation and AirAsia Berhad to support and encourage the involvement of primary school students from Tamil Schools in the field of science and technology.

### **Award received by Dr. Subramaniam Gurusamy**

Dr. Subramaniam Gurusamy, Vice President of ASTI had received the below listed awards:

- Outstanding Innovator Award 2019, Ministry of Education Singapore.
- Innergy Award 2019 - Silver, Ministry of Education Singapore
- IP Award, Nanyang Polytechnic for a patent: A method of authenticating edible bird's nest.
- IP Award, Nanyang Polytechnic for a patent: A plant extract comprising statins and preparation techniques and uses thereof



**Shortlisted under K-12 Category for Reimagine Education Award**

Reimagine Education is a global conference and competition, open to all those who are transforming education. The conference brings together edtech startups, academic faculty from top universities, Chief Innovation Officers, university leadership, teachers, and other stakeholders in the future of teaching and learning.

The Reimagine Education Awards – the ‘Oscars’ of Education’ – rewards innovative approaches that enhance student learning outcomes and employability, offering \$50,000 in funding to the overall winners.

This year, 1507 educational innovators from 39 countries submitted their projects to 16 Award Categories. The shortlisted applicants, comprising the top 15% of applications, showcased their innovations to a global audience of 600 educational leaders at the 2019 Reimagine Education Conference on the 9th December 2019, which saw the winners of the \$50,000 funding pool revealed at the prestigious Gala Dinner and Awards Ceremony.

Young Inventors Challenge project was shortlisted for Reimagine Education Awards under the K-12 category. K-12 Category seeks any innovative new pedagogical approach, technological tool, or employability-enhancing endeavour that was targeted at, or is designed for the K12 sector. However, such projects should also either be scalable to a higher education audience, or prepare students for higher education more successfully than current approaches allow.





# ADMINISTRATION FINANCE

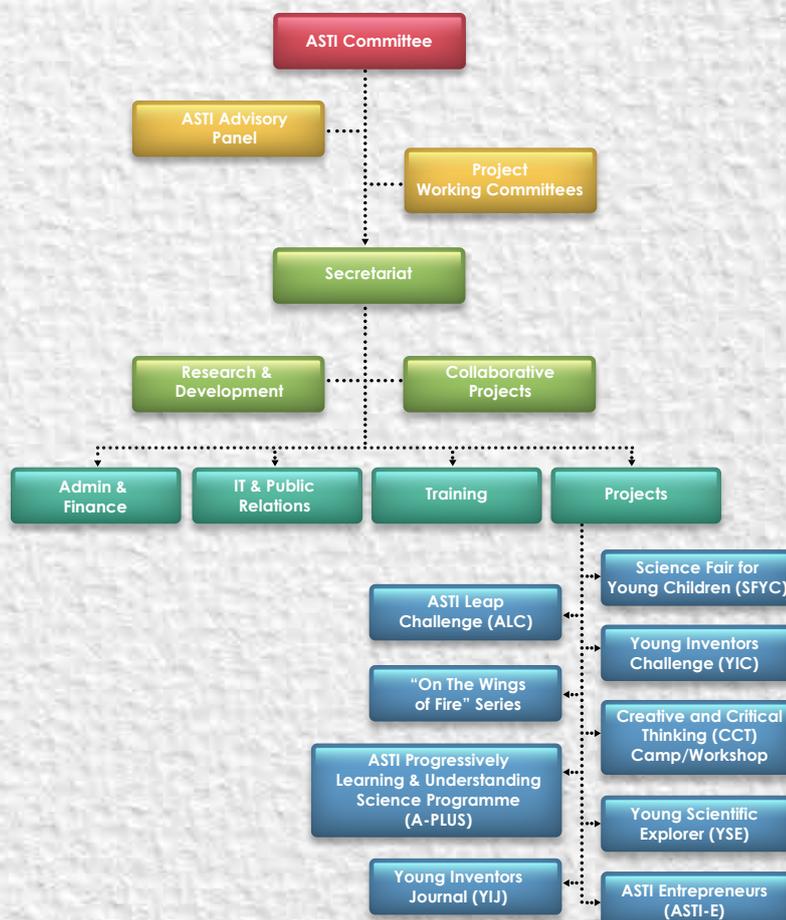
## 6.1 Administration

### 6.1.1 Premise

ASTI's office is located at No. 16A, Jalan 21/12, Sea Park, 46300 Petaling Jaya, Selangor Darul Ehsan. ASTI rents the premise on a monthly basis, renewable yearly. To ensure ASTI has a fixed place of administration, the discounted rental is usually paid one (1) year in advance. This also enables ASTI to have a good relationship with the landlord. In addition, ASTI pays the utility bills monthly. All repairs are paid by the landlord.

### 6.1.2 Staff

In 2019, there were five full-time staffs who work on various projects such as Science Fair for Young Children, Young Inventors Challenge, Creative and Critical Thinking Camp, ASTI Leap Challenge, "On the Wings of Fire" series, Young Scientific Explorer, A-PLUS (ASTI Progressively Learning and Understanding Science) Programme, ASTI Media Engagement Programme, Science Film Festival, and many more other projects. The organizational structure is as shown below:



## 6.2 Finance

The financial statements have been prepared in accordance with the historical cost convention and complies with applicable approved accounting standards in Malaysia.

<b>Statement Of Income And Expenditure Account For The Year Ended 31st October 2019</b>	
Income	809,619.22
<b>TOTAL INCOME</b>	<b>809,619.22</b>
<i>Less:Expenditure</i>	
Appreciation	7,234.00
Accommodation	3,411.35
Design	6,048.00
Website	9,488.50
Audit Fee	2,000.00
Bank Charges	446.50
Cleaning Services	2,400.00
Depreciation	1,248.00
Donation & Sponsor	6,190.00
Electricity and Water	6,243.51
EPF & SOCSO	19,513.30
Insurance	10,523.00
Internet Charges	6,236.50
Postage, Courier & Stamping	1,047.90
Printing & Stationery	34,282.20
Staff Salaries and Allowance	196,201.50
Staff Rewards	12,785.00
SFYC Project Expenses	229,560.69
YIC Project Expenses	102,776.68
CCT Project Expenses	2,181.25
ALC Project Expenses	1,299.75
Prizes & Souvenirs	17,573.60
Rental	22,500.00
Research & Development	3,668.00
Telephone	250.00
Travelling & Transportation	16,627.90
Medical Fee	957.00
Other Expenses	9,824.75
Other Projects	51,055.00
Repair and Maintenance	2,040.00
Food & Staff Refreshment	8,834.15
Bad Debt Written Off	14,500.00
Multimedia	3,600.00
<b>TOTAL EXPENSES</b>	<b>812,548.03</b>
<b>EXCESS OF INCOME / ( EXPENDITURE)</b>	
<b>INCOME AND EXPENDITURE ACCOUNT</b>	
Total Income	809,619.22
Total Expenditure	812,548.03
<b>(Deficit) / Surplus</b>	<b>(2,928.81)</b>

# 7 FUTURE PROJECTS

Besides continuous improvement and expansion of its current projects, ASTI hopes:

- to partner with more organizations in order to develop more innovative projects for young kids; and
- to run a Teachers Conference to upskill teachers and to support them in any areas ASTI is able to.

# 8 APPRECIATION

Finally, the ASTI Committee expresses its profound gratitude to everyone who has contributed in various ways towards the success of ASTI and its projects. We hope to work with all our stakeholders continuously to achieve our aims and objectives. A special thank you also goes out to our funders who have helped us keep our vision alive.



## CONTRIBUTION FORM

- Science Fair for Young Children (SFYC)
- Young Inventors Challenge (YIC)
- Creative & Critical Thinking Camp (CCT)
- ASTI Leap Challenge (ALC)
- Young Inventors Journal (YIJ)
- Other : \_\_\_\_\_

RM

- ~~~~~
- RM 5,000    
  RM 10,000    
  RM 15,000    
  RM 20,000

Name of Donor : \_\_\_\_\_

Organization : \_\_\_\_\_

Contact Person : \_\_\_\_\_

Address : \_\_\_\_\_

Tel. No: \_\_\_\_\_ Fax: \_\_\_\_\_

H/P No: \_\_\_\_\_ Email: \_\_\_\_\_

Cheque: RM Cheque No.:

in favour of

**PERTUBUHAN SAINS, TEKNOLOGI DAN INOVASI**

*(No. Pendaftaran : PPM-012-10-25102012)*

**CIMB Account No. : 800 271 0841**

*\*Note: to receive an official Receipt, please fax this donation form & bank slip to 03 7872 9551*

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date





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